

Apple Orchard

JULY 1984

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The Premier Magazine for Apple Computer Users

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AppleWorks

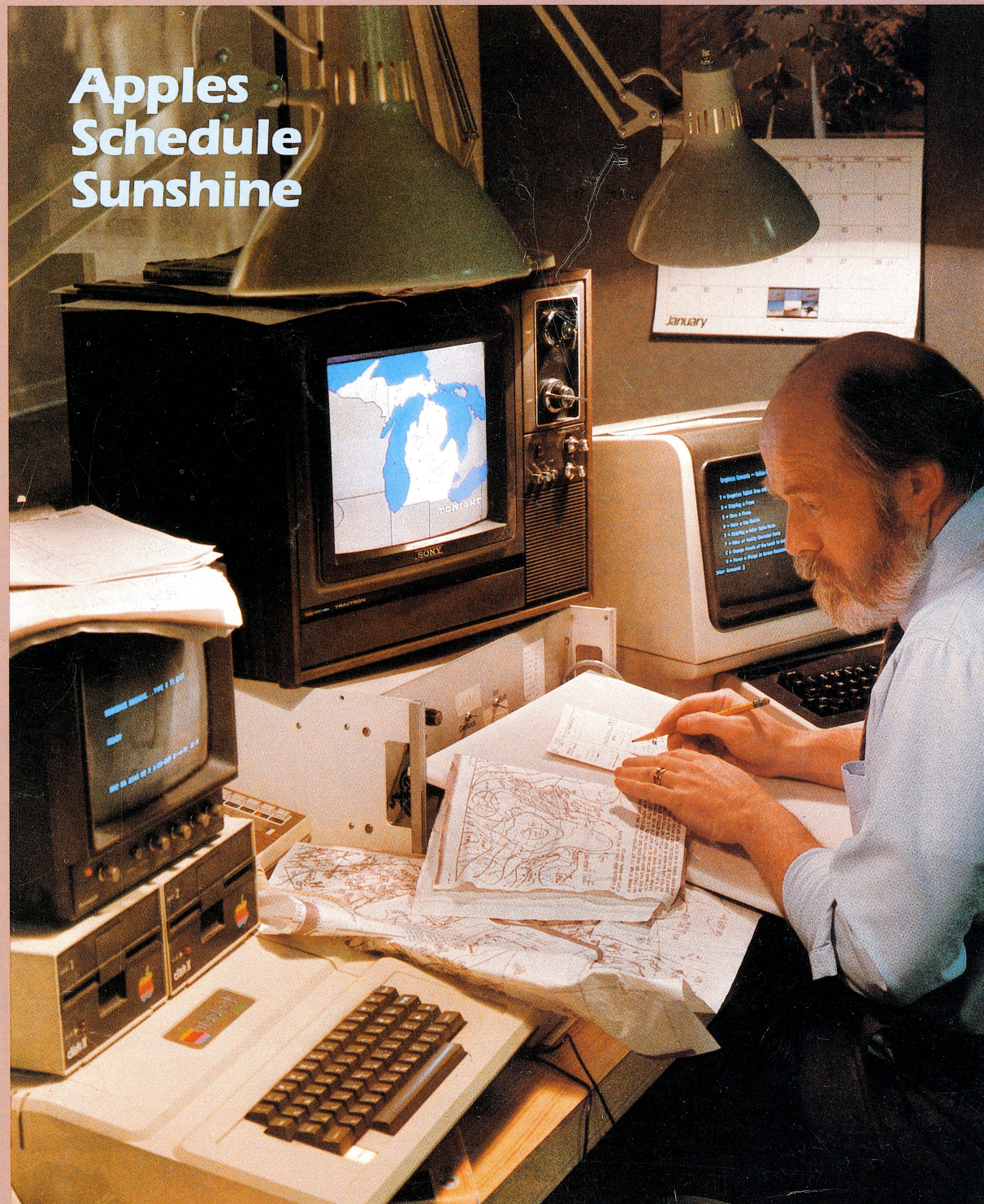
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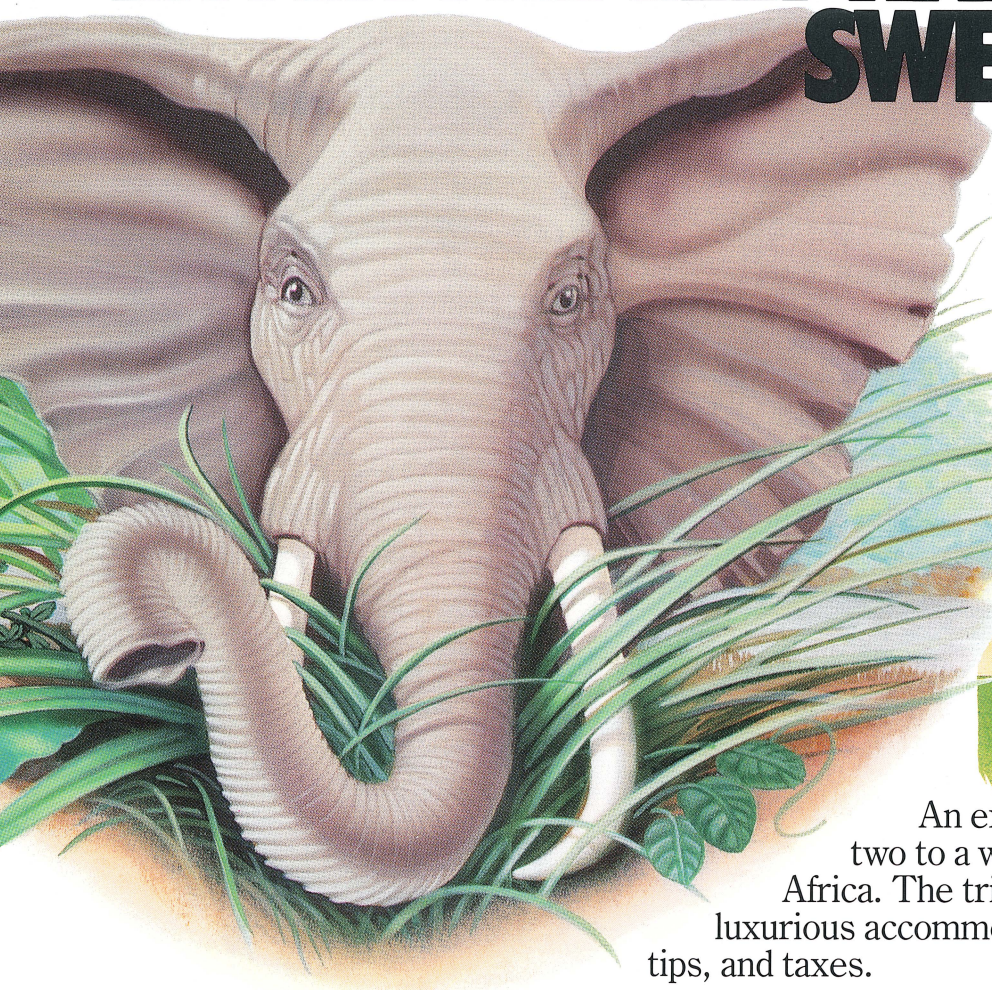
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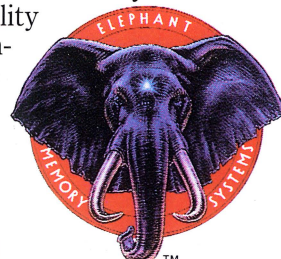


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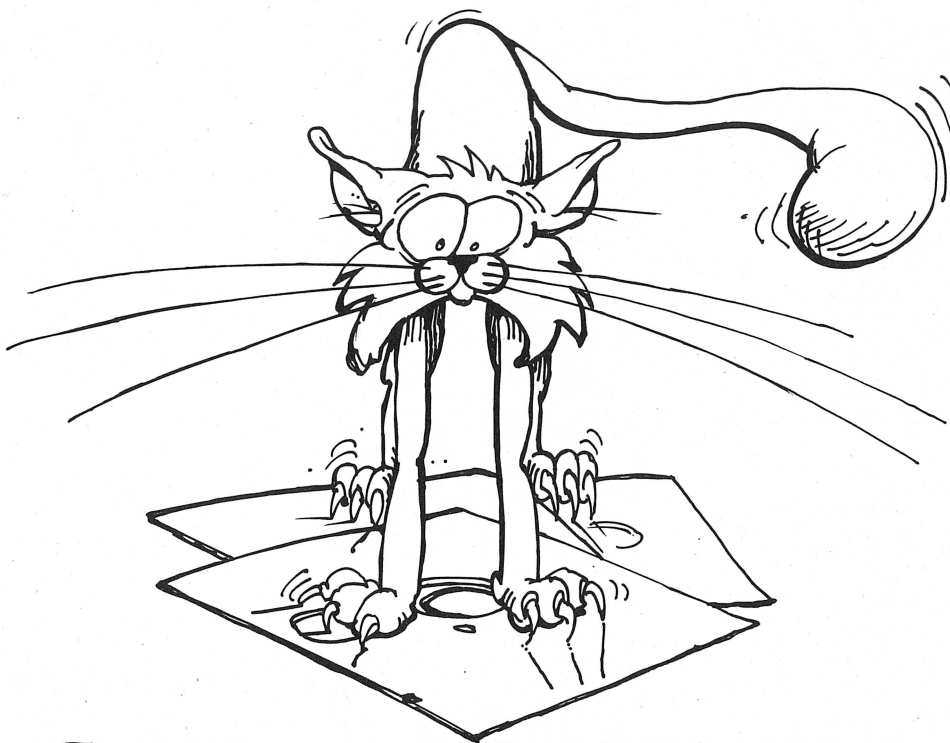
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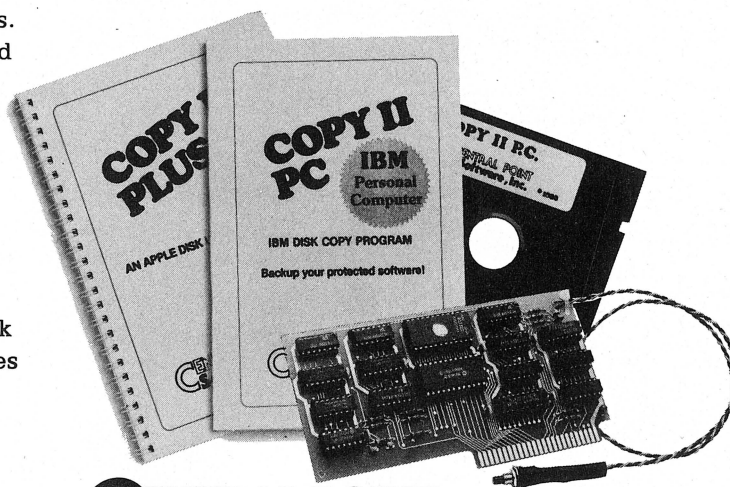
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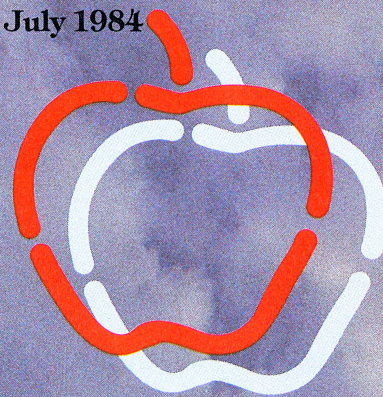
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APPLE

Take a Bite...

Volume 5 Number 6 July 1984

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Departments

Textfile **4**

Peter C. Weiglin - Planting a Seed
The Ethereal Networks **6**

Scot Kamins - Books
and Assorted Bi-Monthly Opinions **55**

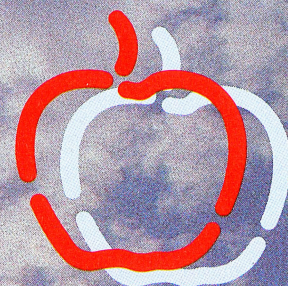
The New Stuff
Temptations, Delicacies, and Necessities **57**

Advertisers' Index **60**

Opchard

Articles

-
- 8** **Review: Dow Jones Spreadsheet Link** – Phil Bernheim
Useful tool for money management.
-
- 12** **Review: AppleWorks** – Joyce Conklin
The package that makes all the difference.
-
- 14** **What's My Line** – Liza Loop and Andra Pearldaughter
On-line services for professionals.
-
- 19** **Reviews: Apple //e Tutorials** – Lynn Gormann
Multi-media help for the beginner.
-
- 20** **Review: Time Trax** – Gary Bettes
Time management software plus clock.
-
- 21** **Review: Time is Money** – Cathleen Morgan
Accounting system for personal and small business use.
-
- 22** **Data Communications** – Morgan P. Caffrey
An introduction to the future.
-
- 27** **Television Apples** – Mike Wendland
Apples used on and off-screen.
-
- 30** **Review: Flying Colors** – Jillian D. Milligan
Graphics and computerize "slides".
-
- 32** **Hackers** – Mike Wendland
Breaking into systems – for fun!
-
- 40** **Review: CMS Market Counselor** – Gary Wollin
More investment software
-
- 41** **Review: Videx PSIO Card** – Neil Lipson
Parallel, serial, and graphics on one card.
-
- 44** **Photonet** – Lenore Wolgelenter
Communications network for photographers, authors, and others.
-
- 45** **A Word Processing Database** – Richard Loggins
Part 1 of a new WPL Series.
-
- 49** **Review: The Visionary 100 Super Modem** – Michael Askins
The "Dumb" modem recedes into the past.
-
- 51** **Dump Debug** – John B. Matthews, M.D.
A Peek at Apple Pascal's Heap.
-



THE BEST WORD PROCESSOR IN THE WORLD! Well . . . Maybe . . .

For The Apple II, II+, And IIe,
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THE SOFTGLOW WORD PROCESSING SYSTEM

There are many word processors available for the Apple Computer, each having different features and functions, and each claiming, in some way, superiority to the others. Trying to pick "the best one" to meet your requirements can seem like an impossible task.

Softglow, from Softinson Data Corporation, may be the answer. Its features are listed below in some detail, and its price is inexpensive enough to justify its purchase even if you already own a word processor.

Some Facts-Softglow:

- is a true full screen editor for the Apple II, Apple II+, and Apple IIe—at all times, "what you see is what you get."
- is written completely in assembler language—system response time is very fast—screen update is instantaneous.
- uses standard DOS text files—so it's compatible with many other word processors.
- has fast loading of text files—up to 5 times normal speed.
- has standard word processing features—such as word wrap around, alpha lock, tab, and global search and replace; and some nonstandard ones such as soft hyphens and non-break spaces.
- supports lower case, the shift-key modification, and enhancer (under the keyboard) boards.
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- 12 Cursor Control Commands—including move cursor by word, page, and paragraph.
- 5 Modes of Updating Text—insert, delete left, delete right, replace, and case change.
- 9 DOS File Commands—uses standard DOS files—commands are: load, save, delete, catalog, lock, unlock, rename, verify, and initialize.
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Textfile

Our focus for this excursion is on communications. Senior Editor Pat Caffrey begins to cover the fundamentals and the background of computerized communications. While the more technically knowledgeable of you may think it a bit elementary, it's a good way to bring most of us up to speed.

"The More Technically Advanced" are the subject of Mike Wendland's story on the "hackers", done with his typical investigative thoroughness. Some unusual communications uses and networks are described in other stories; we've looked for some that you may not have heard of rather than hammering the same old themes.

Last month, we looked at 3 EZ Pieces, an integrated software package for the Apple ///. This month, Joyce Conklin looks specifically at AppleWorks, the same program for the Apple IIe and IIc. With a word processor, spreadsheet, and database in one program, AppleWorks is making converts of many Apple owners. We've enjoyed watching skepticism turn to enthusiasm around our offices.

Richard Loggins is back for another round of WPL articles. (WPL is a part of Apple Writer, not AppleWorks.) The response to his original series was quite gratifying, and we're glad to have been the first publication to cover this "sleeping giant" in some depth. Also back with us is Scot Kamins with his book review/essay column.

Sad note as we go to press: the word is that Apple has killed the Apple ///. For a while, the thought was that it would be kept alive on a limited-production basis. But, a memo from the /// Group indicates that their function now includes transference of ///-related software to run on Apple IIs and Macintoshes. That's an ironic twist; one alleged problem with the /// was limited software. You can't blame Apple: the same resources invested in other products is quite likely to bring higher returns. Once 512K Apple IIs and Macintoshes appear, the /// will have adequate successors. Meanwhile, just ask most ///owners whether they'd trade their machines for other machines; chances are, not too many would. Even now.

Excelsior!

—PCW

Circle HelpCard No.009

Planting A Seed

The Ethereal Networks

There is hardly a soul who doesn't believe that the next step in the microcomputer revolution will be widespread networking, the use of data communications technology for local area connection of computers and peripherals. You have (for example) four workstations, two printers and a hard disk in your office; what you'd really like to do is to have them work together and share information. What could be easier?

Caution: you are about to enter the worst thicket in all of microcomputerdom. It is inhabited by a welter of proprietary local area networking systems, which may or may not accommodate all of your present and proposed peripherals, and which may or may not be eclipsed by emerging technology. That's a problem, because networking requires cables, generally imbedded in the walls of your building along with the electric and telephone wires. That's a sunk capital cost, and not easy to change later on.

A few months ago, Apple announced that, rather than continue development on its own networking system, it would wait for and be compatible with IBM's forthcoming network. In doing so, Apple is believed to have recognized the inevitability of IBM's system as a standard because of the IBM PC's acceptance by much of Corporate America. The stage was thus set for a ludicrous Spring circus as an industry awaited the thunk of a dropped shoe, the IBM Networking System.

In May, IBM made an announcement regarding its local area network: the cable to be used is twisted-pair copper wiring. Hardware and software will be available later; the full system will be out "in two to three years." That was it. Use twisted-pair copper (and not, by inference, the coaxial cable of Xerox's Ethernet). Hardware? Software? Trust us, it's coming right along. Don't worry your heads about it, we'll get to you eventually.

Old Blue dropped not a shoe, but a shoelace. The company that gave the world Junior now gives birth to a wire. The only sure winners are Anaconda, Phelps-Dodge, etc. The reaction to this underwhelming strip-tease was mixed outrage and amusement. The Ethernet supporters were last seen rubbing their hands together in glee over the prospect of another two-year head start, despite the admonition to use something else, on faith. Those who had postponed decisions on network configurations are sputtering, feeling that they have been betrayed. And the mainframe manufacturers who remember vague announce-

ments about future products in years past are likely to be the least surprised of all.

And what of Apple the Company? Well, the AppleBus system uses a twisted pair copper cable. They're also believed to have a networking system close to Ethernet on a shelf somewhere. Apple's reaction to IBM's non-event seems to be not rage, but amusement. When they stop laughing, the Apple folks may realize that they have the horses and the opportunity to contribute a great deal to standardization in networks. That's the next big area to be exploited.

It really is a shame that the world won't hold still and wait for the Word from Armonk (or Boca Raton) any more. People are going to go ahead and start networking without IBM, as rash and radical a concept as that might be. The leadership everyone expected from Big Blue just isn't there; the chances are very good that in two years, IBM may just have to force itself to be compatible with somebody else.

Why not Apple?



Reid Bigli

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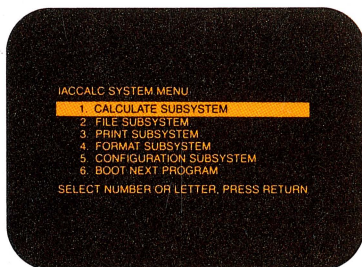
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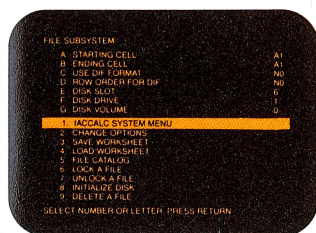
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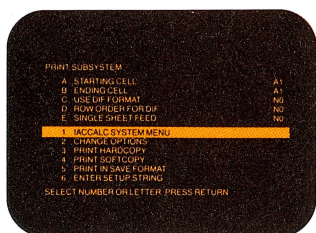
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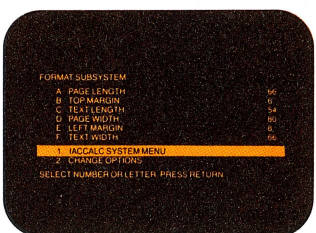
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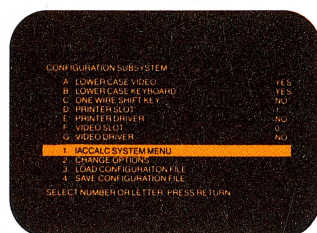
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DOW JONES Spreadsheet Link

A Program Review

By Phil Bernheim

The latest piece of software to be issued by Dow Jones & Co. is designed to use spreadsheets to access and retrieve information from their News/Retrieval service without the use of intermediary programs, such as their Market Analyzer program or even just a modem program.

This does the whole job with only a spreadsheet program in addition. One may also use this program to access historical information accumulated on disk by the Market Analyzer, a feature which avoids useless phone time while retrieving the same information twice.

Although the 114-page instruction book which accompanies it gives instructions for only two spreadsheet programs (VisiCalc and Multiplan), it should work with any spreadsheet that keeps its data in either of those two formats. The writer has used Call-A.P.P.L.E.'s THE Spreadsheet, and MagiCalc also uses the same data format.

In use, the top row and left-hand columns contain the "signals" to Dow Jones to indicate what information to retrieve. This signal is a "V-" (without the quote marks) in the leftmost column to mark securities symbols, and the same signal in the top row to mark data items to be retrieved.

There are a vast number of "Data Items" that can be retrieved for each security -- 9 pages of them in the 6 x 8 1/2 instruction book. These include current quotes on NYSE, Amex, and Nasdaq stocks and options, preferred stocks, warrants, bonds, mutual funds, and Treasuries. Also included are historical quotes on common and preferred stocks. In addition, there are the statistics supplied by the Media General database, the Disclosure II database, and the Corporate Earnings Estimator. Some "data items" go back as much as 5 years, if you want. There is more data here than one could possibly digest!

One has a great deal of leeway in designing templates, since the program ignores (in its retrieval phase) anything not marked by the "V-" symbol. This means that rows and columns can be designed in any order, so long as that data you want retrieved is marked with the symbol.

The manual is clear, with many illustrations, and a sample session to walk you through the procedure -- well worth following, since there is nothing like "hands on" practice to learn something.

There are three general steps in running the program. First you set up the spreadsheet you want the data for, including formulae for massaging the data you retrieve, and store it on your spreadsheet data disk. Then you store it as a DIF file on the Dow Jones disk.

The second step is to access Dow Jones and let the program automatically retrieve the information you want.

Third, you load your spreadsheet file back into your computer, overlay it with the information you have retrieved, and there you have it! The formulae in your original spreadsheet will have already recalculated everything with the new information you retrieved!

The Dow Jones Terminal Program is included, and this is the major weakness, as it is in all Dow Jones programs. Since it does not include a capture buffer, all printing out of information obtained when used as a terminal program must be done on-line; it's a very expensive procedure. (This does NOT apply to the data retrieved for the spreadsheets, which is automatically written to disk, and further massaged by you off-line.)

Nor does it apply to the IBM version of the program, which does contain a "print to disk" feature that Apple users must do without.

The second draw-back to the program is the relatively great amount of disk shuffling required by going back and forth between two separate programs: the Spreadsheet Link and your spreadsheet program. This is where everything on a hard disk would be a real advantage in speed! However, considering all the advantages to this program, the clumsiness of disk shuffling is not too big a price to pay.

The program is available for both Apple and IBM-type computers at a price of \$249.50. The price includes a subscription to the Dow Jones News/Retrieval service, access numbers, personal I.D. code, etc. Time charges for use of the computer are as low as 13 cents per minute in non-prime time.

This program is a very useful tool for the person interested in investments, portfolio management, etc., and an indispensable tool for financial analysts, strategic planners, and money managers, because it eliminates the need for tedious data entry.



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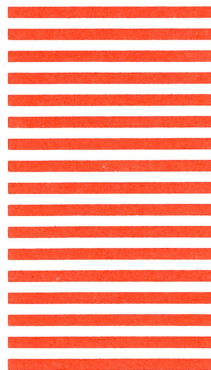
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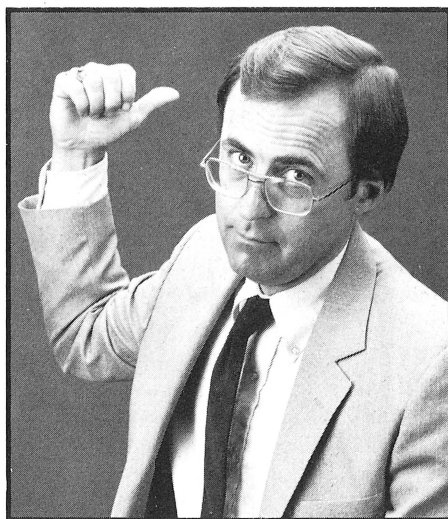


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AppleWorks

— A Review

Apple Computer Inc.
\$250.00

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AppleWorks is an integrated software package (what isn't, these days??) containing a word processor, a data base program, and a spreadsheet program. The package comes with a start-up disk (or boot disk) and a program disk, along with a disk of sample files, and two tutorial/demo disks. The two-part program/start up is required because AppleWorks operates under ProDOS, which must be installed in your computer first. AppleWorks requires a //e computer with an 80 column card; it works best if the 80-column card also contains the additional 64K of RAM, as you would quickly run out of memory on the spreadsheet otherwise.

The major advantages to using an integrated software package are that commands used are the same for each application and you can move parts of one program into another. The first advantage is a prime consideration when the user is new to microcomputers and may be more than a little apprehensive. Even those who use micros constantly will find a little change-over time required if they've been using VisiCalc all day and then shift to the word processor (ever strike /S to save an AppleWriter file?!) The second advantage is primarily from the data base or spreadsheet to the word processor, rather than the other way around. In fact, you must save either the data base or the spreadsheet as an ASCII file before it can be transferred to and inserted into the word processor file.

The use of terms may take some getting-used-to for old-time computerniks, as the words used in AppleWorks are

designed for the ordinary person-on-the-street. As an example, the "saving" to an ASCII file referred to above uses the PRINT command (not SAVE) as you are printing to disk in a different file format from the one currently in use. SAVE is just within a file type (data base OR spreadsheet OR word processor). The various commands use the Open-Apple key on the //e in combination with one other key, wherever possible mnemonically connected with the process to be executed. Open-Apple-C is used for COPY (within the worksheet currently displayed, to the "clipboard" or from the clipboard.) The clipboard is a buffer location in memory. Notice the use of the word COPY (an every-day word) instead of REPLICATE.

The program is completely menu-driven, and you *could* manage to find out all the ins and outs by just hacking your way through. In fact, for experienced computer users, the need to step through several layers of menu to accomplish a particular function may be a bit annoying, but the advantages outweigh this minor inconvenience. It is, however, advisable to work through the two demo disks first to see all of the possibilities. The demo programs are designed to allow ONLY one response — no playing around to see if you can crash the program! — but after you have seen what can be done, there is a tutorial manual to give you experience with your own typing, formulae, (on the spreadsheet) and categories for the data base. You can also use the sample files on disk and just work through the actual examples in the tutorial.

Whenever you are using a file, there is information about that file displayed at the top of the screen. In the upper left corner is the name of the file, in the center is the mode in which you are working (usually REVIEW/ADD/CHANGE), and in the right corner is the level to which you will return if you press the «ESC» key ("Main Menu" when you are in the REVIEW/ADD/CHANGE mode.) You can always stop — I almost said 'abort' but that is a computer term, not an every-day term! — an action by pressing the «ESC» key and you will be returned to the previously active level, wherever the cursor was when you started the incompleated action.

While working, you can save the current file at any time by just pressing Open-Apple-S, as you have assigned a file name before you built it. Then OA-S is all that's required, not the whole name, or even an = sign. OA-S will save over the previous version of the file. OA-N will allow you to rename the file in memory so that you can save different versions to disk. AppleWorks is a bit cumbersome if you have only one disk drive, because you must swap program disk and data disk, depending upon the operation which you wish to perform at the moment. It seems, however, that once you have done a particular operation, it is in memory for the remainder of that session and you do not need to reinsert the program disk every time. Obviously it would be more convenient to have two disk drives, so that your program disk could be in drive 1 and your data disk in drive 2. I found it more convenient to back-side my program disk with the boot-up ProDOS program; that way I only have one disk to worry about. You only need the boot-up once per session, but it saves having to move disks in and out of both the disk drive and the paper jackets.

Word Processor

This portion of the program is the most like others which you have used. There is the advantage of having a "what

you see is what you get" approach. The changes in printing options are accessed by the use of OA-O (for 'options') where you may select the number of characters per inch (this program has definitely not entered the metric age!) — 10, 12, or 17, — the margins — left, right, top, and bottom, — and beginning and end of bold face sub- or superscript, or underlining. Appleworks does not support italic type face from within the program, so you would need to set your printer to this and produce the entire document in italics — probably not a great idea.

The TAB stops are indicated across the top of the screen with short vertical lines like the one produced by the Shift-backslash key. Using OA-T displays three choices — S: Set, C: Clear, and R: Remove all — across the bottom of the screen. Also displayed on this line is the column where the cursor is currently located so that you can set your tab precisely without having to hold a ruler up to the screen to match columns of letters!

OA-Z will allow you to see exactly where in a program you have set different print options; the CI (characters per inch) option allows you to select an eighty column display instead of the seventy column display which is the default. When printing a series of documents, you must select the print options each time, as the program resets to default values after each document is printed (even if you do not turn off your printer or computer.) This is a definite disadvantage, especially if you are doing a number of such documents. Maybe the first revision will allow the user to load a preferred set of default values. It would be nice to have TAB settings at other than every 5 spaces, which seems just a bit close.

Spreadsheet

In an attempt to replicate — oops! COPY — formulas on the spreadsheet I found a limitation, in that you can only replicate for 62 columns. No matter how hard I tried, with various stratagems, I could not get the program to accept more than 62 columns based upon cell A1, even though it was long before the stage of running out of memory. My spreadsheet memory test is a simple-minded one, based upon the old chess-board puzzle of doubling the number of grains of wheat on each succeeding square; except I don't get greedy — I just add one (¢1) to each succeeding square or cell, rather than doubling. OK — so now I have 62 in cell B1 and the copying stops, giving me back my original location of B1. When I move the cursor to B1 (using the OA-F — for FIND keyboard macro) and try to continue the copying from that point, it's no joy. Is that a bug, or just an undocumented feature? When I modify the test program to work with 10 columns so that all are visible on the screen, I can copy and add down to about 200¢ rows before memory is exhausted and the program hangs. Not that you have to turn off the machine and start over again, but you do have to ESC out to the menu and delete that file from the desktop.

You may have up to six files active on the desktop at one time (depending of course on available memory) and switch quickly — very quickly — from one to another. When you return to a file with which you were previously working, the cursor will be right where it was when you left the file. Very convenient if you need to check some information in a data base while you are writing a letter or book with the word processor.

Data Base

In setting up the data base you need to specify each field name, as is true with most data bases. Once you have decided what fields you are going to use, you may then start to add in the information. Each field comes up as needed; you may press «RETURN» if you want to leave that field blank. When you press Open-Apple-F (for Find) to search for particular records, you will see a list of the first two to four fields (depending upon field length) of the first fifteen to twenty records. Open-Apple-Z (for Zoom) will toggle between the multiple-record display and the display of all fields of one record, even those which don't appear on the screen in the multiple-record format. You may use any combination of search criteria, with Boolean operators (AND, OR, etc.). The search procedure is very fast and will include specifiers from any field you want, not just the key-fields (as in PFS.)

There is a limit of eight report formats which you may have active for the data base. If you want to have a "ninth" different format, you must first delete one of your original eight.

Summary

To become thoroughly familiar with this program will take some time; pretty soon someone will provide a "command tree" showing the various layers or branches of the menus for each of the keyboard macros. But the effort required will pay off handsomely in the increased ability to accomplish tasks which have previously required much disk-swapping, in addition to allowing many manipulations which were previously impossible.

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SOME COMBINATIONS

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N	DOUBLEWIDE EMPHASIZED
O	DOUBLEWIDE EMPHASIZED DOUBLESTRIKE
P	CONDENSED DOUBLEWIDE
Q	CONDENSED DOUBLEWIDE DOUBLESTRIKE
R	CONDENSED DOUBLESTRIKE
S	CONDENSED HALF SIZE
T	RETURN TO STANDARD SETTINGS

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What's My Line

(an introduction to on-line services for professionals)

by Liza Loop and Andra Pearldaughter

In today's professional world, the edge that separates you from the practitioner next door is often your ability to have the most up-to-date facts at your fingertips or to find that unique historical event that proves your point. The professional who has access to information will pull ahead of the competition.

Your Apple computer can be a window into worlds of information important to your professional life. It is much more than an animated game board or a loom upon which to weave programs. Together with a modem to connect to the telephone lines, and a communications program to send and receive signals from other computers, your Apple will become one of your most vital links to a myriad of INFORMATION SERVICES and the DATA BASES they provide.

To use telecommunications services effectively you need to know what is available, for whom the service is designed, and how to use it. Currently there are several kinds of ON-LINE INFORMATION SERVICES. In this article we have grouped them into three categories: 1) commercial data bases, 2) special interest groups, and 3) other activities including consumer services, electronic bulletin boards, and hobby clubs.

We will briefly explore how professionals use all of these on-line services but we will concentrate on data bases in the fields of medicine and law. This doesn't mean you should stop reading if you don't happen to be a doctor or a lawyer. Many people in related fields -- researchers, writers, editors, and consultants -- are discovering that specialized on-line services provide them with important professional resources. In addition, they have the opportunity to work from the most inexpensive of offices, the dining room table. Data bases are springing up in a variety of subject areas. Because they often function identically, you can pick up a number of useful pointers here, even if we don't happen to touch on your area of expertise.

OVERVIEW OF HOW TO USE A DATA BASE

By far the best established type of the on-line service is the data base. A data base is a collection of indexed information. Given this broad definition, a public library or a record store qualifies as a data base. However, we are interested in

ON-LINE DATA BASES, those information sources that have indexes that are stored on, and can be searched by, computers.

Originally, on-line data bases were developed by government agencies and large companies for use within each organization. Librarians and search analysts, trained in the use of the search methodology of each system, actually pushed the keys to request information. The data base existed on the tape or disk storage of one, centrally-located computer. The searcher worked from a terminal connected directly to the main computer or telephoned in from a remote terminal and modem.

With the widespread use of personal computers, several new access routes to on-line data bases have been created. One of these is the general purpose telecomputing service. The Source, CompuServe, Dialcom, and Telenet are among the most popular. These companies serve as retail outlets for many different services, including electronic mail, special interest groups, and consumer services like CompuStore, as well as various data bases. These ON-LINE RETAILERS usually do not gather the information that makes up the data base. Rather, they outfit the data bases they offer with "menus" and "help features" for use by individuals who are not professional searchers. This creates a much more "friendly" search process. Usually the menus describe, in a phrase or two, what paths you may take to find the exact document or paragraph you want. The help screens are pages of instructions on how to use the particular part of the service you are in at the moment. Some on-line retailers, such as BRS After Dark, and Dialogue's Knowledge Index, specialize, offering only data bases (with menus and help features) but not other services.

Each retailer has arrangements with telecommunications companies (Tymenet, Telenet, and Uninet, to name just a few) that specialize in transferring computer data along the phone lines cheaply and accurately. The retailer recommends several of these companies (called COMMON CARRIERS) to the user. You dial the phone number of the telecommunication company you have chosen and type the code for the information retailer with whom you have an account. You will receive an identification number and secret password when you arrange for your account. The cost for using a telecommunications network with local access is much less than a long distance phone call directly to the

retailer's computer. That cost is billed by the retailer along with per hour connect charges for the services you have used. Although most of the time, it is of no consequence which telecommunications company you use, you will occasionally discover a message on your screen describing some problem that originates with the common carrier and not with your retailer.

Both information retailers and telecommunication companies are expanding and many offer overlapping services. Telenet, for example, is well known for its data transmission services. Most of the major information retailers can be reached via a Telenet phone number. However, Telenet also offers a retail telecomputing service package for doctors called MiNet and one for the financial community called FiNet. A few on-line service retailers, such as CompuServe have developed such a large customer base that it is cost effective to set up their own network of leased telephone lines and skip the telecommunications middleman. Other examples of overlap are the legal data bases services, Lexis/Nexis and Westlaw. These companies compile the information they offer and serve as their own retailers (through a common carrier).

You can also subscribe directly to a service designed for professional searchers. Many of these will accept subscriptions from anyone but require one to two weeks of training to learn their search methodology. Since they are not equipped to handle emergency phone calls from customers who are having difficulty completing their searches, they discourage the casual private user. Like much of the on-line information industry, these companies are in the midst of

transforming their products from being oriented exclusively for professional searchers to being comprehensible to a relatively untrained public. Lockheed's Dialogue is such a service. Professional searchers use it for access to a large number of data bases and complex search languages. Beginners may subscribe to Dialogue's Knowledge Index which gets you into many of the same data bases but with menus, help screens and less variety in the way you may specify your search. As Hal Tauber of Information Architects in Menlo Park, CA, points out, "The real problem is: how do you make information available to people in a way that's useful rather than saying there's the library, fellows, go to it." People will gravitate toward systems that bring them to satisfaction with the least amount of effort." Thus an on-line service that is easy to learn to use may be more popular than one that has more accurate information in a more difficult format. In general, the more "user friendly" services are less expensive but usage is often limited to non-business hours.

Deeper Into Data Bases

On-line data bases can be separated into two groups depending on the type of information offered. One group contains only bibliographies that reference paper or microfiche documents. These are useful for finding out where the information you need has been published, but they do not provide you with a copy of the text. Many bibliographic data bases are accompanied by on-line document ordering services. Once you have found the articles you need you can order photocopies which will be mailed to you within a few days and billed to your account.

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The signal conditioner's outputs are a high quality 16 pin gold I.C. socket that matches the one on the A/D's so a simple ribbon cable connects the two. The signal conditioner can be powered by your Apple or from an external supply.

FEATURES

- 4.5" square for standard card cage and 4 mounting holes for standard mounting. The signal conditioner does not plug into the Apple, it can be located up to 1/2 mile away from the A/D.
- 22 pin .156 spacing edge card input connector (extra connectors are easily available i.e. Radio Shack).
- Large bread board area.
- Full detailed schematic included.

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The other group of data bases has the complete text "on-line" so that you can search for documents that refer to, say, the Heimlich Maneuver, and read whole articles from your computer screen. Many professional data bases fall into this category since they are computerized versions of reference materials formerly available only in printed books. As with bibliographic data bases, some in this group are accompanied by on-line document ordering services. A few even have electronic mail features that let you send the results of your search to colleagues who have accounts on the same system.

An on-line retrieval system is not the answer to all information problems. If you need whole books, you are better off going to a library. Even if all you need is the full text of several twenty-page articles, few of us want to pay the per-hour charge to have them sent to our printer. A more practical approach is to locate the articles through an on-line index and request that the information provider print them and mail them to you. However, on those occasions when you need only a page or two or when three days from now is too late, there is no substitute.

What On-Line Data Bases are out there?

There are literally thousands of data bases accessible from your computer and modem. Some are "public," available to anyone who can come up with the initial subscription fee plus the per-hour connect charges; others are "private," available only to company employees or professional society members. There are even books that list them: *The On-Line Data Base Directory*, published by Cuadra Associates, in Los Angeles, CA and the *Encyclopedia of Information Systems and Services*, edited by Schmittroth are quite complete and are updated regularly.

To see a data base in action, let's follow the process a lawyer might use in searching one of the public data bases, Westlaw, with an Apple computer and modem.

In the old days (still very much with us) if you asked your lawyer to represent you in a suit brought by your neighbor who was injured by your lawn mower, he or she would spend hours pouring over books of case law in the library. Today your attorney could log on to the firm's Westlaw account and would find a menu of the materials Westlaw has on-line:

<<< WESTLAW DIRECTORY >>>		P1
DATABASES		
FEDERAL		
GENERAL (Statutes, cases, etc.)	.....	P2
TOPICAL (Tax, securities, labor, etc.)	.....	P3
STATE		
MULTISTATE (Regional Reporters)	.....	P4
INDIVIDUAL STATES	.....	P5
NATIONAL	.....	P6
SERVICES		
TRAINING COURSES	.....	P7
HIGHLIGHTS	.....	P8
DICTIONARIES	.....	P9
CITATORS		
SHEPARD'S	.....	P10
For more information about a database or service, enter its page number, e.g., P2.		

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After choosing the section to explore (here California law reports) the attorney types in one or more words which are likely to occur in any discussion of the cases sought. In this example, "lawn mower" and "defects" were the terms used. Below is the first display page in one of two cases found in this search.

Citation	Rank(R)	Page(P)	Database	Mode
128 Cal.Rptr.545	R 1 OF 2	P 1 OF 18	CRP	T
56 Cal.App.3d 470				
Carmen FOGLIO, a minor by and through his Guardian Ad Litem, La Verne Foglio, Plaintiff and Appellant, v. WESTERN AUTO SUPPLY, a corporation, and M.T.D., a Corporation, Defendants and Respondents. Civ.15286. Court of Appeal, Fourth District, Division 2. March 23, 1976. Hearing Denied May 19, 1976.				

* Minor brought action against LAWN MOWER manufacturer and seller of LAWN MOWER for damages for loss of his eye allegedly caused by projectile discharged from *LAWN MOWER. The Superior Court, San Bernardino County, Thomas M. Haldorsen, J., entered judgment for defendants, and plaintiff appealed. The Court of Appeal, Tamura, Acting P.J., held that trial court's rendition of instruction defining *DESIGN DEFECT, and placing on plaintiff burden of proving not only that product *was DEFECTIVELY designed but that DEFECT subjected user or bystander to unreasonable risk of harm, was error; that trial court's rendition of instruction advising jury that evidence of custom or practice in trade or industry 'ought to be considered on the question whether or not the defendant ...

On Westlaw, the search words occur in capitals on your screen and each sentence that contains one of them is highlighted with an asterisk. You can tell the computer to use many different word combinations in its search. For example, you can request all instances in which the word "defect" appears in the same sentence with the words "lawn mower." You can ask for an exact word, "defect," or all forms of it such as "defects," "defective," and "defectively." Choosing the best search method for each data base takes practice and creativity as well as some familiarity with the subject area.

In addition to summaries of cases and law journal articles, Westlaw contains data base services such as legal definitions and summaries of recent cases not yet published in print. The other national legal data base is Lexis/Nexis, a service with the same basic legal information but a different

and, according to Lexis afficianados, better, indexing and search system. Lexis/Nexis contains both the legal data base component (Lexis) and a news and information database covering the *New York Times*, *Washington Post*, *U.S. News & World Report*, *Christian Science Monitor*, and wire services. Currently, Lexis/Nexis can be accessed by the IBM Personal Computer, the IBM 3101, and Televideo 950 terminals. John Coyle, manager of market development at Lexis states that developmental work is now in process on an interface between Lexis and several different Apple computer models.

Banking is a field in which there is a sharp distinction between public and private data bases. Within even moderately sized banks today most information about customer accounts and bank investments is stored in private, computerized data bases, for in-house use only, of course.

Professionals in the financial community make extensive use of publicly accessible data bases covering stocks, bonds, commodities, options, and business news from such companies as Remote Computing Corporation and Tymshare. Dow Jones & Company also has profiles and detailed financial information on thousands of U.S. businesses. There are data bases for the Federal Reserve Bank (FRB), Federal Deposit Insurance Corporation (FDIC), Federal Home Loan Bank (FHLB), and for regulatory bulletins. Commercial and consumer credit information comes from Dunn and Bradstreet's Financial Profiles and from TRW's CREDIT DATA. Domestic and foreign credit market data bases are offered by RAPIDATA Division of the National Data Corporation.

The health sciences also have a large number of on-line data bases. This is due to the activities of two professional societies (the American Medical Association (AMA), and the American Association for Medical Systems and Infomatics (AAMSI)), the federally-supported, National Library of Medicine (NLM), and the pharmaceutical companies. One major service is NLM's Medline, available through several on-line retailers, including Dialogue's Knowledge Index and BRS After Dark. Since there are so many commercial data bases in the medical field, your best guides will be the professional societies mentioned.

Organically Growing Data Bases

So far this discussion has focused on commercially compiled collections of information. But a new genre is developing as a result of the on-line special interest groups (or clubs) of the type supported by the CompuServe Information Service. Each special interest group (SIG) has an electronic bulletin board and an informal or user-created data base (the XA data base). A user can transfer any text or program listings from his or her personal computer into the data base. This makes information available from the participants in the SIG that is so new it has not yet been immortalized in print. The XA data base is organized into ten sections titled by category and each user provides keywords at the time his or her contribution is made. This makes it possible to search the XA data base like a commercial data base.

Let's look at the Med SIG on CompuServe as an example. Once you have entered the CompuServe System you will see the main prompt, " ! ". If you then type: " go hom 123 ", you will be greeted by these messages:

Welcome to The Med SIG, V.2C(10)

Name: Liza Loop 70007,1341
Last on: 24-Feb-84 21:38:59
High msg#: 0
You are user number 40366
System contains messages
13369 to 13693

Brief bulletin:

You are invited to become a member of the nation's largest medical computing association. Join ranks with your colleagues and:

- *Learn about computer applications from experts;
- *Keep up-to-date with hardware and software developments;
- *Share in two national meetings each year;
- *Receive a quarterly newsletter and "Medicine and Computer" monthly;
- *Participate in Professional Specialty Groups;
- *Learn how computer networks will influence the practice of medicine;
- *Find out about standards of terminology and coding;
- *Receive news of major conference proceedings.

For additional information, put your name and address on this message board addressed to 76703,323 and a packet will be sent to you, or write to:

Ann Barker c/o AAMSI
Suite 402
4405 East-West Highway
Bethesda, MD 20814

(301) 657-4142.

Gordon C Black, MPH
MEDSIG Manager

Having received the "brief bulletin" you may want to read some of the messages from the general bulletin board. Sometimes the message titles are intriguing.

Function: qs
System contains messages
13369 to 13693
Starting message (N for new): n
13369: MEMBERSHIP INFORMATION
5 replies
13381: My problems
4 replies
13391: Adverse drug reaction?
13417: BELONGING TO AAMSI TIVE.
13432: SICK SINUS SYNDROME
13457: software evaluation
1 reply
13476: LITERATURE SEARCHES
13662: Bubble Boy
13682: speech pathologist S.
13683: FROM MOIRA VIA CLEM

After reading a message you can write and send a reply if you wish. The information in the messages on this electronic bulletin board do not comprise a data base because it is not indexed sufficiently for automatic search and retrieval. However, there are three data base areas within each SIG. The section for members to record their interests in short form is accessed by typing "v" after the system displays the

prompt word "function:". By searching through the "Interests" file using the keyword Music, you can identify those members of the group who have included it in their descriptions.

Enter search string
(blank line implies all): music

71646,1276

NC Rick Davidson / PARASITOLOGY, CLINICAL EPIDEMIOLOGY, MUSIC, STATISTICS

72366,2642

PE WARREN GOLDFEDER MD / SYLVANIA MY FIELD OF SPECIALTY IS DIAGNOSTIC RADIOLOGY, HOBBIES:CLASSICAL MUSIC,THE MARX BROTHERS, RACQUETBALL,

A similar search yields members who were interested in Apple computers.

Enter search string
(blank line implies all): apple

70116,1677

DC ROBERT S.GREENBERG / medical education, medical student, TRS80-MOD100, APPLE, Pediatrics, Psychiatry

70356,164

CA JEFF MILLER / EMS - MOTION PICTURE STUDIO FIRST AID - APPLE II PLUS - SOFTWARE -CONFERENCE TREE BBS @ 805-985-2591

71545,1663

PA RICHARD BLUTSTEIN / Neonatology, TRS-80 MOD I, LDOS, PASCAL, FFT, SIDS, Signal processing, Apple //e

The two letters preceding the name indicate the state so you can search for local people or for individuals by name.

The formal data base (the X data base) in Med SIG is mostly unused because it is difficult for neophytes to figure out how to contribute to it. But the informal area, called the XA data base is full of BASIC language programs and text contributed by members. The "catalog" command shows you the file names of these contributions:

[72405,1375]

NEWBOR.DOC

24-Dec-83 1940

[70156,1167]

PILOT1.ASM

05-Dec-83 59685

SAMPLE.PIL

05-Dec-83 3845

[71605,666]

SNAB1.BAS

11-Oct-83 12625 19

QA.BAS

05-Sep-83 9840 29

The number in square brackets is the identification number of the contributor. The last programs in this list were contributed by a doctor who described himself like this in the interest file:

71605,666

GA ALAN D.CLARK,M.D./ EMERGENCY MEDICINE COCO 64K/ COMPUTER APPLICATION FOR ER DATABASES, IE MED/SURG EMERG/ DRUG INTERACTIONS DEV DISK SYST ATL ER GROUP

Here is part of a program he wrote and put in Med SIG called "Ped.cpr."

10 REM PEDIATRIC FIRST LINE DRUGS

20 REM by

30 REM Alan D.Clark,M.D.,F.A.C.E.P.

31 " WRITTEN IN MICROSOFT BASIC

32 " DESIGNED FOR USE IN THE E.D.OR IN THE FIELD

33 " PLEASE NOTE:

34 " CALCULATIONS ARE FELT TO BE CORRECT; HOWEVER

35 " PLEASE CHECK CALCULATIONS CAREFULLY PRIOR

36 " TO ACTUAL PATIENT USE.

40 CLEAR 100

70 PRINT:PRINT:PRINT:PRINT

...

160 PRINT"Input patient's initials:":INPUT N\$

170 PRINT"Input Wt in kilograms:":INPUT W

180 PRINT"Input time of cardiac arrest:": INPUT T\$

...

570 PRINTTAB(1);"Epinephrine";TAB(20);E;"cc";TAB(36);

"1:10,000 IV/ET"

580 PRINT

590 PRINTTAB(1);"Bicarb";TAB(20);NA;" cc";TAB(36);"IV bolus ql0min

...

The XA data base in Med SIG could well be a valuable resource to physicians looking for BASIC language programs to use in daily practice. The doctors who use it are helping to develop a vital new form of information exchange that could benefit any group of professional people.

Other On-Line Services

There is not enough space in one short article to describe the myriad of other services you might wish to try online. However, you could follow up on these:

ON-LINE PERSONAL BANKING. Customers with personal checking accounts at Bank of America, to name just one of the pioneers, can view their bank statements (updated daily,) and pay bills to other businesses operating with the bank. Questions can be asked of the bank's operations center and answered by electronic mail.

ON-LINE SHOPPING through COMPU-STORE. This computer-based shopping service marketed to consumers through several of the information retailers. CompuStore offers lists of merchandise with prices (the data base) as well as an ordering service. You can find an item in the data base, arrange to pay for it with a major credit card, and have it shipped to your door-- all from your Apple keyboard. There is an extra fee for the time you spend on CompuStore added to your bill from the information retailer.

ON-LINE HOBBY CLUBS. Like the professional SIGs, hobby clubs and discussion groups are springing up on many telecomputing systems for people interested in everything from aviation to yachting.

So, if you have been thinking that your computer is limited to the desktop on which it sits, it's time to change your point of view. See your Apple as a doorway that opens onto vast mountains of information. More than that, see it as a pathway that takes you to those mountains. And then, let it be a camera that lets you carry home a special image of the mountain that is meaningful to you.

Apple //e Tutorials

1. INTRODUCTION TO THE APPLE //e

Lewis Video Productions
New York City \$60

2. HOW TO OPERATE THE APPLE //e

FlipTrack Learning Systems
Glen Ellyn, Illinois \$57

Reviews by Lynn Gorman

I am a computer widow. My husband recently asked me to test and to review two new products which are designed to enable the beginner to begin with his/her Apple //e. This caused me great distress and anxiety because, in spite of micro-computers being almost the main topic of discussion in our household for about six years, I have done little more than turn the machine on and start a few games for our five-year-old. I'm scared of the inanimate monsters; I'm "computer-blocked". In fact, after reviewing the two products, I'm still scared, but now a little less so.

As you now know, I know nothing about computers (other than buzz words) so I was a good subject to test both the "Introduction to the Apple //e", a videotape produced and distributed by Lewis Video Productions in New York City, and "How to Operate the Apple //e", an audio cassette distributed by FlipTrack Learning Systems in Glen Ellyn, Illinois.

I tried the videotape first. It was only 30 minutes and I could watch it. As I learned from speaking with the producer of "Introduction to the Apple //e", he developed the tape to assist new purchasers in getting started with their Apple //e. When he purchased his computer, he experienced frustration in what to put where and fears about touching components, etc. He felt that a simple videotape showing where everything went and what was fragile and what was not would be helpful to first time purchasers. He was right; it is useful.

The instructor in the two-actor lesson is extremely clear, slow and only slightly pretentious. The student was also slightly pretentious, but these were not professional actors. So setting the temptation to pick on the acting aside, I would say that the presentation is very good. The photography of the component parts and the monitor is excellent and there is no room for confusion. The step-by-step demonstration of

the installation of the equipment and the interface cards and the peripherals is very exact. I'm certain that if you followed the instructions, you would not accidentally "blow up" your computer, one of the main fears of the "student" (and me).

Among the warnings were to not smoke around the disk drives, not to spill coffee on the keyboard, not to touch the "gold fingers" on the interface cards, to make sure to discharge any static electricity before inserting the interface cards, to touch the diskettes only on the edges, and not to force any connections. Among the fears allayed were that it is difficult to damage the keyboard through energetic typing, that you will not blow up a program if it is safely stored on the diskette and that, in general, the computer, the peripherals, the interface cards, and the diskettes are not overly fragile as long as you take a few precautions.

The second part of the tape, after the physical parts of the computer were described, demonstrated in very quick fashion use of a word processor, an electronic spread sheet and a video game. I found this section too brief to be useful and honestly couldn't understand why it was included. I felt the tape should have ended with the completion of all of the connections of equipment and instructions on how to boot a diskette.

John Lewis Video, the distributors of the videotape, informed me that most of their sales have been to individuals. I was a little surprised at this because I see its primary use as a sales tool or as an institutional learning aid. After the computer is safely installed, I don't see where a person would make much reference to the videotape again. It reminds me of the "how-to" tapes played on monitors at home improvement centers. I could see a real use for it at computer stores, computer centers, schools, libraries, and businesses using the Apple //e, etc. It would also be great as a loan item from the computer store or your local library when you take the computer home, assuming you owned a video tape player. At a suggested retail price of \$60 per tape, my guess is that it would be a lot more economical if it could be viewed by multiple owners in sequence.

After using the videotape, I moved on to the approximately six-hour lesson (3 tapes) utilizing audio cassettes and an operator's guide called "How to Operate the Apple //e". I was a little unprepared for the length of time this was to take but found it worth every minute. The tapes run on one side but have separate lessons on the flip side for more advanced procedures and for those with two disk drives. As a frightened and neophyte user, I really felt gentled into the computer operation. This narrator has a great diskside manner and was neither too fast nor too slow for a beginning computer user.

The material covered is substantial and is not meant to be covered in one sitting. I did the lessons one at a time due to so much material and too little time. It only takes a few minutes of review each time to carry forward the needed data for the next lesson. The lessons are well reinforced in the Operator's Guide which outlines the highlights of the tapes.

Lesson 1 is called "Getting Acquainted"; it lets you know what you will need to complete all the lessons such as the computer, a monitor, a disk drive, a System Master 3.3 diskette and a "Sample Programs" diskette. On the main running side (not the flip side), the instructor talks about caring

for diskettes, booting from the power switch, running programs, correcting mistakes through the use of the arrow keys, some error messages, using a "menu-driven" program and rules about how the computer keyboard differs from a typewriter keyboard. It also tells you how to use the computer without a diskette, the use of special keys, setting up the system, the use of the arithmetic symbols in doing calculations, displaying text, and clearing the screens.

On the tape's flip track for Lesson 1, more specialized uses such as adjusting color on a color monitor, editing functions, using an 80-column card, using a numeric keyboard and the order of arithmetic operations were discussed. A final portion of the flip track offered a self-checking quiz to try out everything learned in the first lesson.

Lesson 2 was concerned with using disk storage and covered such topics as displaying the catalog, interpreting the catalog (differentiating between asterisks, A's, I's, B's and T's), switching between Applesoft BASIC and Integer BASIC, initializing diskettes, booting from the keyboard and copying programs. Error messages such as "file locked", "write protected" and "file type mismatch" were covered. I also learned how to lock and unlock files, how to delete them, how to change their names and how to place secret codes in program names to protect their being copied.

The flip side offered further instruction on controlling a printer if you have one, customizing the initialization procedure and copying programs using two disk drives. It went into great elaboration on using two disk drives and explained how once the computer has been directed to one disk drive, it will stay there until redirected. The tape again ended with a self-checking quiz.

Lesson 3 addressed itself to making copies and program changes. It talked about duplicating diskettes with the COPY program, copying files with the FID program, cataloging files with FID, using "wild card" file names with FID, and checking space on a diskette with FID. I also learned how to add Integer BASIC to a diskette, list lines in a program, modify a program, stop and start a program listing and to modify screen displays.

The flip side offered instruction in duplicating diskettes with the copy program and two disk drives, using FID to copy files on two disk drives and to switch between them with FID. It also discussed converting files from a 13-sector diskette and finally, offered a quiz.

Even as I look over the Operator's Guide to write this review, I am stunned by all the material covered and am further stunned by how much I have already forgotten. Just looking at the subject names makes me think that I am not capable of such sophisticated operations, having no capacity whatsoever for computers. But believe me, dear reader, I did go through all the lessons and I did understand and I could do everything requested of me. So can you. Even though I will have to go through the lessons again and again, I am confident that all of these foreign ideas will become more comfortable.

If any of you have an Apple //e and are wanting to enter the world of computing and want a place to begin, begin with this tutorial. It provides a gentle and thorough introduction. They have a series of these covering different subjects. I may try the Apple /// next. 🍏

Time Trax

Creative Peripherals Unlimited, Inc.

A review by Gary Bettes

TIME TRAX is a time management program. The heart of this system is a real-time clock (included in the \$100.00 price). This clock serves a similar function as other clock cards on the market. The main difference with this clock is that it resides in the game port. A battery back-up is provided as well as a socket for your joy stick or whatever now resides in your game port. This is a neat little piece of hardware which should have been on the market long ago. When digital watches sell for as little as three dollars there is no reason for a computer clock to cost \$150.00 (or even more). Utilities are provided to date and time stamp DOS 3.3 files and read the clock from within BASIC programs.

The time management program is also very useful. The program allows you to create a user disk for each person using the system. This disk is loaded using the program disk. The user disk stores calendar information for eleven months prior to and after the current month. This is a good appointment calendar, which allows you to flag entries and also specify advance notification in days, hours or minutes. A chime option will cause your Apple to chime on the hour or half hour. If you leave your Apple on during the day, as many of us do, the program will also sound an alarm for your advance notification. In the event that you don't use your computer for a few days, the system will notify you of any missed events. The system will also define any personal holidays, which will cause that day to flash when examined on the calendar.

Some of the negative points of this software are that passed events cannot be changed. If you want to record notes from a meeting on your calendar, it is impossible. Also at this time it is not ProDOS compatible. I have been told that a new version of the software is due out shortly, and was promised a copy in time for this review. Although I have not seen this revision, I am told that it fixes all of the shortcomings of the older version. This is one company that tries to be responsive to their customer's needs. They have a toll free phone number with technical service personnel available to help solve your problems. I called the number when I first received the software due to a problem with booting. Although the problem was with my disk drive, I felt that they were responsive to my needs and did not discount the possibility of a program error.

At this time the clock module is not available separately. However when you purchase the package, you can purchase additional clocks (up to a maximum of four) for \$40.00 each. This is great for people who have access to more than one computer system.

I feel that this is a good company to deal with. The system is reasonably priced. It is not often that a company is this responsive to their customers. I feel that the hardware is first rate and the software is good. With the promised revisions (including a ProDOS patch), I feel this is a package worth purchasing. 🍏

TIME IS MONEY

Review by Cathleen Morgan

“**T**ime is Money” is a small accounting system for personal and small business use. It provides a range of functions: checkbook balancing, calculation and monitoring of budgets, calculation of net worth and recording of tax-deductible expenses.

Turning Point Software claims to provide a sufficiently complex accounting system to handle the affairs of a small business. It would handle my small consultancy. Inspection shows it would probably handle a small retail business as well. I'll withhold judgement on a larger retail business.

When I first looked at the manual I was not near my computer. So, rather than putting in the main disk and beginning with the tutorial immediately, as I usually do, I started reading. The introductory section, while leaving a few terms inadequately defined for beginners to computing, did an excellent job of summarizing the contents of the manual and the functions the package provides. In addition, it was intriguing. I am a novice to accounting and I saw immediately that I was not only going to learn about a software package, but was going to get the beginning of an education in accounting and personal finance planning. I was not mistaken.

Even without sitting at the computer, the tutorial was so clear that I had no problem visualizing each step of the process. A complete beginner might have some difficulty with the COMPUTER instructions, but the ACCOUNTING functions should be easily understandable to anyone who can read and who has wrestled a bit with their own checkbook and tax records. Not being an accountant, some of the accounting concepts were a bit confusing. But the information was all there. I just had to dig a bit. (This, by the way, was quite a joy. I dislike finding myself confused when I finish reading a manual. Not so here.)

The system, in addition to the well-written manual, comes with a single master disk. The usual “copy the mas-

ter disk” and “initialize working disks” method is not offered. Instead, a master disk menu option is provided that creates USER disks, which contain the master programs and two sets of empty “books”. (The tutorial offers an additional option of creating a USER DISK which contains sample data.) The process is clean and clear. The difference from standard terminology, while possibly disconcerting to a sophisticate, is probably very clear to a beginner. It would not, however, give the sort of knowledge that would carry over to another application.

After the user disks are created, the master is needed only to reconfigure (say, for a new printer) or to create new user disks. (The user is NOT prompted to make a system copy of the master disk — an unusual and perhaps unsafe practice.)

When the user disk is loaded and the system booted up, BOOK 1 is automatically loaded into RAM. ALL processing is carried out in RAM, the updates not being written to disk until I specified end-of-session. So each “book” is limited in size to the amount of RAM available. To an experienced user, the restriction to 2 BOOKS per disk may seem limiting, but the system appears to work well and for a beginner it may be less confusing to track two “books” than to worry about disk directories. A minor problem: instructions for switching books are buried deep in the reference section of the manual and if the index is used, all references must be checked carefully.

When the user is ready to quit the system, the program offers the option of making TWO copies of the “book” in use. This is a great touch; since most applications don't include this option, many users don't bother to make the extra safety copy. Here it is easy as pie. One quibble: the user is not warned ahead of time to initialize a second user disk, which is required.

An additional feature: whatever is shown on the various screens, “including expenses, net worth, and budget accounts by month or by entry,” can be printed. Data can be displayed or printed as line or bar

charts, with monthly or running totals.”

I feel there are two major flaws and one minor one in the system. First, when you are creating your personalized sets of account, income and expense categories, it is apparently impossible to delete one, once added, except by writing a new category name over the one you wish to delete. For most users this may not be a problem, since the system allows you to group categories together conceptually. But when you see your complete list of categories on the screen, you see them as they were entered, not as conceptually grouped. I would like to be able to group sets of categories together so they occur visually together on the screen or a printout. This would require being able to delete and insert entries.

Second, the section on identifying the user's printer is not detailed enough. I was using an older printer (Centronics 737) and would have had some difficulty getting it to work if I was a novice.

The minor flaw is that while the REFERENCE section is clear and well written, it could use either a comprehensive table of contents or a subsection that lists all the commands in alphabetical order, by command name and by function.

I have three wishes about the package, if it is ever issued in a second edition:

- 1) That it be typeset and not typed — the manual would be much more informative with the use of boldface and different type sizes and a generally more thoughtful graphic design.

- 2) That a reference card is added.

- 3) That the ability to delete and insert items into each of the categories is added; (a sort function would be nice, but is not necessary).

On the whole, I think this is a great application, easy to use, bug-free(??!) as far as the functions I could test went, and truly educational for the accounting novice. I am among those who have difficulty balancing my own checkbook. This package offers me the solid hope that I may finally learn how to understand enough about accounting to do some real financial planning for myself.

Data Communications

By Morgan P. Caffrey

Small and large computers are "talking" to each other. The spread of the small computer in schools and businesses has created enormous amounts of data. But in the immortal words of Hoosier philosopher Vane A. Jones, "Knowledge is of no value unless it is shared with others." Hence it is frequently useful to move the data in a computer at one location to another computer. Sometimes this is done for the same task at each computer, sometimes for entirely different purposes.

The most common means of data interchange is the "five finger" transfer; a floppy disk is removed from a drive in Computer A and transferred by hand to Computer B. That may seem obvious, but before starting an explanation of electronic data transfer it's best to remind ourselves that for many purposes, it may not be required. In short, we should not let technology triumph over common sense.

How computers "talk" to each other is the subject to be explored here. We hope to help readers understand something of how computers can share data over long distances, and something of the economic and social impact of telecommunication. We'll also suggest reasons for individuals to explore this burgeoning area of computers for themselves.

A Little History

Lets put a little historical perspective on communicating over distances with electricity. Humans have been telecommunicating for quite a while. In 1747, Sir William Watson showed that an electrical signal could be sent some distance using a single wire, by using the earth itself as a return path for the circuit. (Ever wonder why it's called a "ground"?) It took some vision to guess that the earth itself can act as a part of an electrical circuit. He proved it.

An anonymous Scotsman in 1753 suggested the possibility of information transfer over a distance. It had been noticed that charged items would attract paper. His method included placing papers near "pith balls" that would receive the charge and attract the paper. The idea was to use a separate insulated wire and ball for each letter; an early form of parallel transmission. An observer could copy the information by watching the marked pieces of paper twitch. The writer suggested that the charge could cause bells to ring as well, an idea that was carried out by Georges Louis Lesage in Geneva in 1774. It worked well enough.

In 1786 Luigi Galvani and Alesandro Volta made the discoveries that led to the implementation of "voltaic piles" (batteries) to generate and store electrical charges. This invention added great momentum to many areas of electrical study.

More study. It was noted that passing an electric current through a liquid causes the liquid to decompose into con-

stituent parts. Based on this idea Salva in 1805 and Thomas von Soemmerring in 1809 made devices that detected the arrival of information signals by the presence of liberated hydrogen. Smells funny to me, but it worked.

By 1816 Sir Francis Ronalds had a form of telegraph working in England. He rotated circular plates with letters inscribed (shades of the daisy wheel printer) and had the wheels turning in tandem at each end of the communications link. The sender charged the appropriate line. On the receiving end, an aperture in front of the letter opened to show the letter. Can you see the employment applications? "Do you blink much"? "Have you a tendency to sneeze"? "Can you look away and write at the same time"?

Onward to the invention of the electromagnet. One of my earliest science experiments in school was to wrap a wire many times around a nail and then connect the two ends to a battery and a resistor. I then put the nail near some iron filings. The nail picked the filings right up and dropped them when the battery was disconnected. When you put the nail next to a compass and connect the battery the needle turns towards the nail. Yet if you reverse the wire leads to the opposite ends of the battery, the needle is forced away from the nail. Lesson: current has magnetic effects and the direction of current affects the "polarity" of the effect. There is a physical push/pull force available here. It can be made to do work. Hans Christien Oersted discovered this effect in 1819. In 1825 an Englishman named William Sturgeon produced and named the electromagnet.

Andre Marie Ampere first applied the electromagnet effect to telegraphy. Ampere's work led to a number of other famous (if somewhat dusty) electronic widgets in the 1820 to 1840 period.

You probably get the idea that both inventors and investors knew there was a fantastic force available here, and many companies were formed to take advantage of the new technology. There were plenty of failed business attempts. With all the parallel developments and experimentation the patent lawyers had a field day. (Does any of this sound familiar?) Who owned electricity? Could one own an electronic signal pattern? How would payment be arranged? So much per dot and dash? These problems continue through to today.

What Hath Morse Wrought?

Samuel Morse, an American artist, devised plans for a telegraphic recording device and the rudiments of his dot-dash-space codes, while on a ship returning from England in 1832. Morse's idea was that if information would be transmitted based on the presence or absence of signal as well as duration of that signal, then only one wire (plus ground) would be required. Characters would be sent *serially*, or one after

another. That would be much cheaper to implement and maintain than other schemes to that date. Did you know that the telegraph was the first successful commercial application of electricity? You did!?? Drat.

Three years later, the idea had become a working model. Further experiments showed that after 20 miles the signals weakened too much and the idea of signal repeaters came into being. Repeaters are important in the overall scheme of telecommunications — they recreate a fresh full strength copy of a weak incoming signal. Repeaters enabled transmission over any distance. However, the problem of distortion also appeared. The repeated version of the signal was never a perfect copy of the original, and after a sufficient number of miniscule distortions could become a fresh, strong but unrecognizable version of the original signal.

In 1838 Morse demonstrated the telegraph for President Martin Van Buren. The doom of the exciting Pony Express was now in view. Railroads adopted the telegraph in 1851 to avoid certain problems that arose when trains showed up unexpectedly. (Today's SPRINT telephone service grew out of the Southern Pacific Railroad's communications system.) Morse's code is still in use in the ham radio world, but it's almost entirely out of use commercially.

Well so much for early telegraphy. How about my Apple modem? Hold your horses, the story continues.

The Telephone

With a snap of my magic electronic page flipper — gzzzt — the telephone appears. We have necessarily skipped a good bit of interesting history. Those interested may peruse the reference section for the titles. If you enjoy technological history, it's good reading.

Nobody (well, hardly anybody) wanted a telegraph station

in their parlor. First you had to learn Morse code. And, everybody on the wire could listen in on your conversation. The telephone was much more attractive to the general public because you didn't have to learn code to use it. You had a measure of privacy, if you didn't count the snoopy neighbor on the party line. Compared to the telegraph, the user-friendly telephone spread like warm butter. In a relatively short time a network of wires crisscrossed the nation. It wasn't cheap, but you could talk over long distances, so it was cheaper and much faster than pre-airplane travel. The parallel developments in radio added breadth to the voice (and telegraphic) network.

The telephonic idea was to shake a sensitive surface (diaphragm) with a sound at one end, convert these shakes and shimmies to fluctuations in a DC battery current, and then convert the current alternations into shakes and shimmies in another diaphragm at the other end. The ear would recognize this as a voice. The old gimmick of the two kids with the tin cans and the string is the perfect analogy. The string transmits vibrations and the cans both create and recreate the sound by sympathetic vibrations.

The human ear can hear pretty well in the sound range from 20 to 20,000 Hertz, or Cycles per Second. Some can hear a little higher frequency, and a few people have a much more limited range. The telephone however, has been designed to work at the minimum level, from about 300 to about 8000 Hertz. That is, it transmits the frequencies most needed to create a recognizable voice at the receiving end, without all of the highs and lows. This has been quite acceptable to us, as we don't normally listen to opera or hi-fi records over the telephone.

To make the best use of the transmission medium (wire or radio channel) the telecommunications industry has devised methods to tear apart our voices, toss away unneeded infor-

Some Case Studies

By Morgan P. Caffrey

1. Two microcomputer users are working "together" on a programming project but they live 20 miles apart. When a program segment is to be tested by the other person, the code segment is converted to text, transmitted to the other user, recompiled to working code and executed and tested. Considerable wasted travel time is saved.
2. The author/consultant works out of her home. Her client has a word processing machine that can communicate over the phone. When she has text to send, she calls the office's machine and sends the text. The word processing operator at the office checks the text for formatting commands to match the local printer or the formatting capabilities of that word processor.
3. A social scientist does statistical analysis on both his micro computer and on a large mainframe computer. His data shows up at either end — some data as large

files of numerical information in the mainframe and some as smaller files in the micro. He can use his micro to "upload" setup files for the mainframe's more powerful programs or may download some or all of the processed results to text or data files in the micro. Results may be included, without additional typing, to inject new or accidental errors into the written analysis of the data.

4. An information scientist does "searches" in the world's literature on a research topic. The search quickly returns titles and a small synopsis of the published work. Much rudimentary research work is avoided by finding the most likely originals to work with. (It is also possible that the computer search may miss what the slower, but more thoughtful human might see. There are tradeoffs for speed.)

5. I write this article in San Francisco. I telecommunicate it to Peter Weiglin. He transmits a copy (usually recognizable) to the Apple Orchard typesetter. The typesetter makes the appropriate entries for type fonts, italics, spacing etc.. Only my mistakes (sigh) appear in text.

(Thanks to Prometheus Software for these actual examples.)

mation, and reconstruct the voices at the other end just well enough to satisfy the callers. If you have ever used a WATS line you know that the reconstruction can be pretty shabby. Still, it is good enough to enable us to reach out and touch someone, and that's very good business.

Now for Computers

When computers began appearing on the scene for business they were huge and expensive. Let's say a company

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Tektronix
P.O. Box 500
Beaverton, OR 97077

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Prometheus Products
Fremont, CA

MicroModem II Owner's Manual
Hayes Microcomputer Products Inc.
5835 Peachtree Corners East
Norcross, GA 30092

Computer Communication Techniques
E.G. Brooner and Phil Wells
Howard W. Sams & Co Inc.

puts one at each coast of the U.S. and has them crank out calculations or business records. Some valuable information develops and is stored. What happens when the second (or another) computer needs to process a copy of the data in the first? You either ship tapes or disks, or develop telecommunications methods to reduce to a minimum the repetition of the costly data-entry process. Business demands it.

And luckily there is a communications network in place if we can make use of it — the telephone system. It will send information almost instantly from coast to coast or around the world. (A friend of mine in the Air Force once called me up. He connected via installations around the world and called my number. What's unusual is that he was sitting next to me at the time. There was almost no delay between his physical voice reaching my left ear and the telephonic copy coming through the phone in my right ear. You didn't know the government pays for such things? Golf on the moon, anyone?)

Anyway, we have a communications network in place that throws away information not necessary for the human ear to form a recognizable voice pattern. This cavalier tossing away of information is fine for the exquisite machine that is the human ear. It creates a few problems for data communication, however. (Here's where we get a bit technical).

The computer clanks along processing a few hundred thousand pieces of information every second. The speeds get faster every year. The telephone transmits data (voice) in a very limited portion of the range of the human ear. We can't just pile several hundred thousand chunks of information on the relatively small range of cycles being transmitted. Garble occurs. The transmission rate is limited by the sending medium.

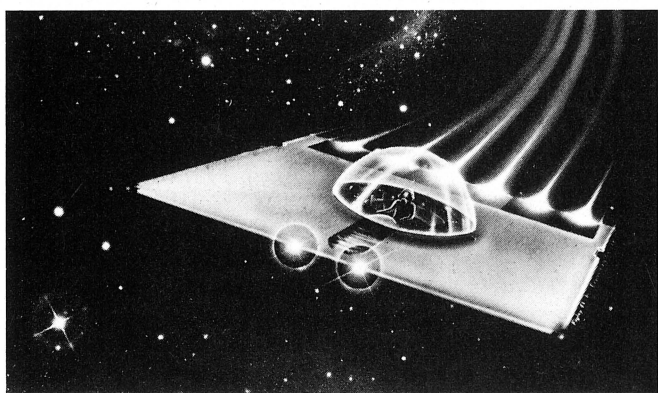
Toots and Tweets

What was developed for data transmission (by the Bell Labs folks who wanted very much to sell transmission time to computer users) was a method of whistling at two distinct frequencies. Frequency Modulation seems to mimic the old on/off effect of the telegraph. Give a *toot* and you send a "1". Give a *tweet* and you send a "0". The circuits they developed would create a "carrier" whistle at a base frequency and shift the carrier to a secondary frequency for the information change. This process of changing the whistle frequency as the information changes is called "modulation". The information is made to modulate the transmission frequency. By the way the real name for a toot is *mark* and for tweet is *space*. A mark frequency is a "1" and a SPACE is a "0" or quiescent period of no transmission.

At the other end of the phone line we need another circuit that can tell the difference between the two frequencies. When the mark frequency arrives a "1" is decoded. When the space frequency arrives it decodes to "0". This circuit is called a "demodulator". The second part of the puzzle arrives.

MODulate plus DEModulate (equals) MODEM

So we now have a device that *modulates* information going out and *demodulates* the information coming in; a modulator-demodulator. That name was quickly shortened to *modem*. So much for the etymology of the word. My 1959



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Encyclopaedia Britannica doesn't include "modem"; it's that new. Let's look at what it does.

In developing a system of tone codes it became clear that each "side" of the communications event had to assume a communication role. Both sides had to transmit and to receive. One side originates the communication and the other answers the originator. The originating device sends information on one frequency-pair and the answering device uses a separate frequency-pair. Since both computers may transmit at the same moment it is necessary that they be able to distinguish between the data they send and the data sent by the other side. An interesting effect of this, not frequently used in microcomputers, is that two computers can be simultaneously and continuously transmitting and receiving. Try that at the dinner table. A more usual method is for one side to alternate sending and receiving.

A nice development in recent years is software-controlled modems that can detect the mode used by the other side and to simply alternate to the other frequency pair. What gets to be fun is when both sides are trying to adjust. This is a form of electronic hide-and-seek. I have only seen this happen once, but communication remains problematic. Life remains interesting.

How Much Data Per Burst?

Explaining technology is a pesky business; we have to review a connecting concept before explaining the main one. There has to be a bridge between how computers store data and how the data is taken apart and transmitted.

Computer Word Size

Internally, computers send data from memory cell to memory cell in words made up of 8, 16, or 32 parallel "bits" of data, transmitted along a "bus" of parallel wires. The parallel lines are the perfect realization of the anonymous Scotsman's dream. When a computer processes the data it evaluates the contents of the data bus word as one "gestalt" (or apparently so from the outside). The number of lines comprise the computer's data "word" size.

The idea of the modem is to send component bits of the data one after the other, serially. Thus the word "serial communication". So while the modem will translate "1"s to toots and "0"s to tweets, each computer must pull apart its internal data words and feed the bits to the modem for transmission in the proper order. This parallel-to-serial conversion is done by your serial port, Super Serial Card, or any other manufacturer's serial device. (MacIntosh and the Apple //c come with two serial ports. Circuit cards are available for all Apple models to send a data word serially to a distant device.)

Luckily for all of us, these devices will also collect the serial transmissions of the distant devices and reconstruct a parallel data word at the receiving end when the process is complete. Arriving data segments are reconstructed into the local word-size before being stored. Seven or eight bit transmission size is the world standard. See more on this below.

Protocols (Who is doing what and when)

But how do the devices know when any transmission sequence is complete? Or for that matter, how do they know

when a transmission begins? How are periods of quiet (no information transmission) treated?

Just like two kids with the tin cans and string; somebody talks and somebody listens or the communication is reduced to mere noise. The development of communications protocols is no more complex than trying to figure out how to tell someone at the end of the string that you are finished talking and ready to listen. Even on a two-way radio, you use words such as "over" when you are ready to listen. You listen carefully for the word "over" and try to distinguish when it is used in context rather than signifying the end, etc.

Electronic communication is even more complicated. What happens if you are sending at one rate of data (300 toots/tweets per second) and the other end is listening at a different rate (1200 toots/tweets per second)? Garble happens. What happens if you are sending and receiving at the same baud rate but the listener begins listening half-way through a word transmission? Again, garble. Some method is required to synchronize the communication process.

In order to avoid all of these troubles the caller and receiver have agreed among themselves to adopt two main protocols, *synchronous* and *asynchronous*.

Synchronous Communication Protocol

In synchronous communications the two sides are constantly talking, even if only to say "saying nothing". They are never allowed to get out of "sync." This also allows immediate detection if a line is lost (tree falls on phone wire/meteor whacks satellite).

Blocks of information are transmitted and then a checksum of the data is transmitted. A checksum is (or can be) simple. Add up the numeric values of the characters transmitted. Toss away carries if the number grows too large. Transmit the resultant number after the block is finished. Meanwhile, the receiving machine is doing the same calculation. If the checksum sent and the same sum computed at the receiving end don't match, the block is retransmitted entirely. There are also error correction methods that reduce the transmission repetition method.

Asynchronous Protocols

In asynchronous communication each computer character transmitted includes a beginning (start bit), middle (data bits), and end (stop bits). If a single character is garbled, the two sides will synchronize again with the next character. The lost character usually remains lost however.

Asynchronous communication is easier, but sloppier, because it sends extra synchronizing information with each character. For masses of data this synchronizing information becomes a significant part of the expense of transmission. For high-speed transmission of masses of data, synchronous transmission is required.

But I'm going to leave synchronous transmission behind. Asynchronous is the method most available to you and me. This is the most interesting group to you and me because it is what the personal computers use.

Essentially the asynchronous protocol consists of:

1. A start bit
2. Seven or eight data bits

(Another digression - The ASCII character set has 128 characters. A byte has eight bits that are capable of 256 distinct states. The eighth bit isn't necessary for text but many programs, some hardware and IBM's EBCDIC character format make good use of the eighth bit to add services. Thus transmission will be a smidgen faster using only seven bits, but it might strip out needed information. The software developers almost always get to (in fact, they must) choose which method to use.

3. One or two stop bits

(Here again, speed transmission up with one stop bit, gain a little security with the extra stop bit. Choose your tradeoff.)

4. A parity bit (even, odd, none)

(Add each bit as it comes in. $1+1=0$. $0+1=1$. $1+0=1$. $0+0=0$. This is binary arithmetic, throwing away the carry after each addition. When the data has been sent, send the last state of the parity bit. The receiving end does a similar process and compares the bit received with the bit computed. If computed results are not the same, a transmission error has been detected.)

Baud Rate

Baud rate refers to the number of bits transmitted in one second. Since there is general agreement that communication happens pretty well with:

- 1 start bit, plus
- 7 data bits, plus
- 1 stop bit, plus
- 1 parity bit

for a total of ten bits per character, then 300 baud (equals) 30 characters per second and 1200 baud (equals) 120 characters per second. But if two transmission partners agree, the word-length may change and the transmission rate may be a bit slower).

So when my computer sends you a character, your receiver is paying attention to the start-bit and stop-bit sequence and essentially gets synchronized when it gets the information in, in the right order. When the start bit and data make sense and the collected data is ready, the device sets a "flag" the computer can "see" to say that data is ready. The computer scoops up the data and stores it somewhere.

This self-synchronizing method has been going great guns for a number of years. It first worked well at 110 baud (approximately 10 chars per second) and the Teletype company did wonders with a device that read punched paper tapes and then serialized the data to the modem. Some models would even punch new tapes as data arrived and then the tapes could become input to the computer through different devices. That was all very slow by today's standards. My first printer was such a device. Noisy, but it got me "hard copy" when I needed it. I still have my TTY43 (a wonderful 300 baud device with a nice keyboard.)

Well, 110 and 300 baud just aren't fast enough these days. People have more data to send than they have time to wait. The problem is that to go faster you have to move to higher frequencies for transmission. The phone network won't

stand still for it. It drives some repeaters into dysfunction. Quiet, hitherto respectable satellites begin to burp and wheeze. We get garble again, and worse, we get cross-talk into other transmission channels that garble their transmission.

Enter "Phase Shift Keyed" (PSK) transmission, and exit the old toots and tweets (*tout suite?*). It sounds different, and it is. With PSK, the timing gets more important and how far the signal deviates from perfect timing is the method of encoding. The detector has to recognize not two frequencies, but the time difference between when it should have received a signal and when it does receive the signal. It works fine, allowing 120 characters per second to be transmitted across most phone lines. Folks, this paragraph on 1200 baud skips a lot of how its done. You need an oscilloscope to figure it all out. It sounds very different on the telephone line, but the result is four times as much data through the wire in the same time span.

Of very real importance to telecommunications users (you and me) is the fact that 300 baud hardware is less expensive to build, and there are lots of computers and computer services that only "speak" 110/300 baud. A whole host of modems have recently arrived on the scene which are dropping 110 and supporting 300/1200. The price of a modem that allows 1200 baud jumps several hundred dollars over the "old" 300-baud units.

For businesses, it is almost foolish not to spend the money for the faster transmission. Time is money and 1200 baud saves time. It pays for itself. The home user has a tougher choice. 300 baud is usually good enough but as time passes, and the price of the faster units gets closer and closer to the slower units, it seems that we have traded a small immediate cost saving for a long-term grudging dissatisfaction. My home-use time is as valuable to me as my business time. Oh well, there are plenty of choices for all sizes of pocket books.

Summary and Teaser

When your Apple sends a character over the modem the following events occur:

1. The character is handed to the serial card as eight parallel bits.
2. The serial card turns the eight parallel bits into a stream of 9, 10, 11 or 12 bits and hands the bits to the modem *seriatim*.
3. The modem shifts the frequency (300 baud) or phase (1200 baud) of the carrier signal being transmitted (there is always a frequency being transmitted).
4. The receiving modem detects the frequency or phase shift (or lack of it) during each bit-period after the start-bit and produces a "1" or "0" signal to the receiving serial device.
5. The serial device collects bits until a valid eight-bit character is formed.
6. The serial device hands the eight parallel bits to the computer's data bus.

Next time, we'll review these straightforward but non-simple concepts and move on to the services you can access from your Apple II, II Plus, //e, //c, ///, Macintosh or Lisa.



Television Apples

Copyright © by Mike Wendland



Photography by Terry Luke

A national weather map with Apple-generated color graphics that display the major weather systems.

It started somewhere northwest of the Rockies, a giant, swirling mass of wind and ice that blanketed the mountain states with upwards of a foot-and-a-half of snow. It slid south, turning into freezing rain and sleet, coating trees and roads with ice, snapping powerlines and snarling traffic all the way down to the Texas Panhandle.

And then, for a while, it seemed to stall. But all it was really doing was taking a breath, letting the strong counterclockwise winds that accompanied it pick up vast quantities of moisture from the Gulf of Mexico. And then the storm took a direct bead on Detroit.

Mal Sillars saw the consequences of what was soon going to happen on

his Apple.

A weathercaster and award-winning meteorologist for WDIV-TV in Detroit, Sillars' greenscreen was filling with a long list of numbers that represented temperatures from across the Midwest. He tracked the growing storm as it rifled its way up the Mississippi Valley, watching the Apple digest the information he was feeding it.

There was no doubt: The warm moist air from the Gulf was turning to thick heavy snow as it collided with the Arctic-chilled temperatures of the Midwest. Sillars went on the air to announce a Winter Storm Watch for the rest of the day.

As he stood before the cameras, he

used a number of graphic designs to illustrate his forecast. A colorized map of the State of Michigan filled in with an Apple-ordered readout of temperatures. Another screen showed a color radar representation of the storm's progress. A third presented a graph comparing previous snowfall amounts from other storms that had similar characteristics to the one that was now approaching.

Owned by Post-Newsweek Stations, the NBC affiliate operates in an ultra new, state-of-the-art studio building in downtown Detroit. And the Apple II used by Sillars, a genial, bearded man known for his conservative but accurate forecasts, is just one of a number of Apples in use at the station, both on and off the air.

"It's hard to imagine doing this without my Apple," explains Sillars. "It's become an absolutely essential part of the show. In this business, we've come a long way from the days of an announcer with a stick and a piece of chalk."

The weather Apple is primarily used to generate on-the-air graphics made available on commercial software designed by Color Graphics Inc., a Madison, Wisconsin, firm that specializes in providing such programming aids to television stations for use in weather shows.

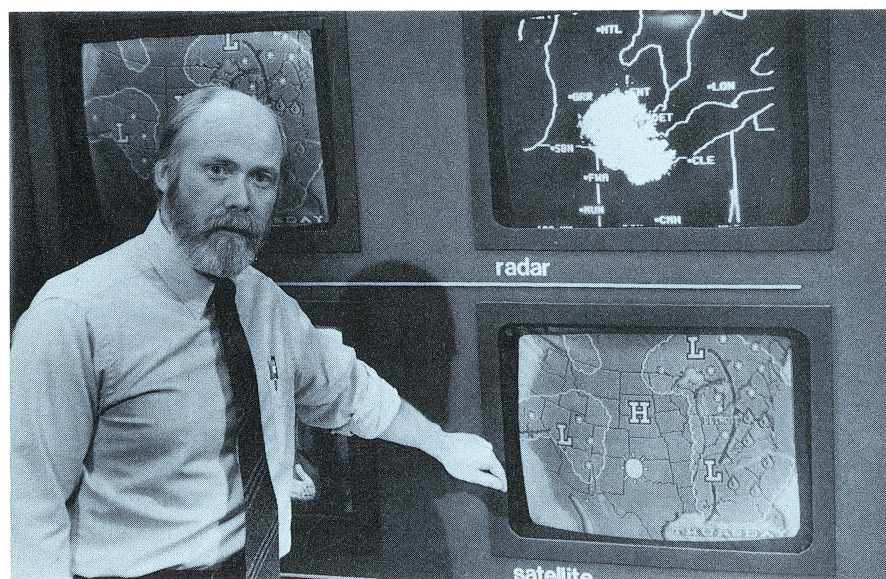
Sillars also uses an off-the-shelf Apple Graphics Tablet to draw in his own low pressure systems, isobars and storm track illustrations.

Hourly satellite weather photos, enhanced and in color, come into the computer's memory via a suburban Washington, D.C., firm known as Environmental Satellite Data. Thanks to a Hayes Smartmodem, all Sillars has to do is dial in and, in less than a minute, he has the current weather picture as seen from space.

"The Apple doesn't do my work for me," Sillars is quick to explain. "My day still consists of reading detailed weather maps, comparing barometric pressure readings, charting wind direction and all the everyday meteorological stuff that goes into putting out a forecast. But once I have a forecast, what then? That's when the computer really helps. Because my job is explaining the weather to people. Real people. Busy people who are tending kids and eating dinner and working and who knows what.

They don't have time for a lot of mumbo jumbo. They want to know what's going to be happening and they want to understand it. That's what the Apple does. It makes me a better communicator."

But it also provides a means to expand his weather reporting and thus better inform his viewers. Sillars has designed a host of weather graphs, charts and statistical displays to illustrate his forecasts. When the always-chilly Detroit winter is particularly cold, as it was this past winter, a push of his Apple's keyboard generates a comparison graph which reveals how, in line form, the previous season's daily temperature lows compared to the current. Same with snow-depths, seasonal rainfall, cloudy days and wind velocity. On the days when not much is happening weather-wise, when he doesn't have to be constantly reviewing the weather maps, Sillars enters his daily and weekly readings onto a records disc, which then allows him to prepare his special graphs.



Meteorologist Mal Sillars at his Apple-generated weather display.

Indeed, so enthralled has Sillars been with the Apple he uses at work, that he made an Apple //e his family's Christmas present for last year. His wife, who is a free lance writer, uses Apple Writer to prepare her manuscripts. He uses it to write meteorological papers.

"I'm slowly learning to program, too, so that eventually, I'll be able to expand the stuff I use on the air back at the station," he says. "There are

times when I'll have just finished eight hours with the computer at work only to come home after the 11 o'clock news and unwind by "putzing" around with our //e at home. These things are addicting."

But the Apple II in Sillars's weather watch isn't the only Apple in the downtown Detroit studios.

In the newsroom, Apples keep track of story assignments, the location and activities of the nine News 4 camera crews, and the daily "run-down" sheets which list and detail the various stories that will used on the station's four daily newscasts.

An Apple ///, using PFS Report and PFS File for its software, handles these duties. Dan Smith, the news futures editor, also maintains his working files on the Apple.

In a major metropolitan area like Detroit, there are literally dozens of developments, court hearings, news conferences and news events which must be checked on each day. A

hand. He typically orders several printouts on a small Epson dot matrix printer. These are then circulated among the producers and assignment desk managers.

"It's all so efficient now," Smith explains. "There's no late-minute panicking anymore, no more sudden discoveries of a slip of paper that should have been read hours before."

The newsroom Apple /// performs another crucial function. The output of a news operation is videotape. Just like a newspaper maintains a "morgue," or clipping file, a modern television station must also keep a library of its electronic "clippings." At most stations, managing these tape archives is an extremely time consuming project. Index cards are most often used to keep track of the information on the videotape story. The cards must be extensively cross-indexed, with separate cards for the subject of the story, the video that illustrates it, what sound or interviews it contains, the name of the reporter, the date the tape aired and whether the story appeared on the early or late news broadcast.

At WDIV all this information is entered with PFS file on the Apple. Only one form need be filled out on a story. Yet whenever a reporter or producer needs to retrieve that story all that has to be done is to fill in the search parameters.

"Just keeping this information on a computer makes it much easier to maintain our archives," says Paul Manzella, the station's news manager. "The result is a much better news product. In minutes, we can lay our hands on precisely the file video we need to really complete a working story. That gives us a big break. We deal in time, and the more time we can save, the better we do."

Reporters and news managers aren't the only people who save time thanks to WDIV's computers.

In the "wire room," the long closet-like alcove that houses the AP, UPI, Reuters and wirephoto machines that come into the station from the news gathering services of the world, is still another Apple.

This one is another Apple II. It is tucked on a small shelf and surrounded by a small nine-inch monitor on its

missed follow-up call or a forgotten news conference may mean a missed story. And in a market as competitive as Detroit, too many missed stories will take its toll in the ratings. At most stations, these "futures" are jotted down on a piece of paper and stuck in a manila file. All too often, however, the scraps of paper get lost or misfiled.

With the Apple and PFS, all Smith has to do is call up that day's file and all his information is immediately at

right and a Hayes SmartModem on its left. The Apple, via the modem, is hooked up, 24 hours a day, to Metro Traffic Control, the private traffic reporting system that keeps tabs on the always congested and confusing maze of freeways that flow from downtown Detroit like the spokes of a wheel.

Detroit, after all, is the Motor City. The manufacturing of the private automobile is directly responsible for almost four out of seven jobs in the Detroit area. So there isn't much in the line of public transit in Detroit. People are expected to buy and drive what they make. While that may create lots of company loyalty, it

average travel speeds on the freeways.

"Since we started the computerized traffic reports we've received lots of telephone calls and letters from people who say how glad they are to know what it's like out there," says Mark Effron, the executive producer. "Downtown workers have taken to checking the office TV before leaving work. Wives at home adjust the time their dinners will be cooked to compensate for the traffic their husbands are driving in."

Like Mal Sillars in Weather Watch, the Apples have also won the approval of newsroom employees. The

tion on the Apple. He has also custom designed some payroll accounting software for the station.

But Reid-Nickerson's Apple /// just may be the most important computer at the station.

For it is his unit that receives, via another Hayes SmartModem, the "overnights," or the ratings surveys from Neilson, the private firm that measures the viewing habits of the Detroit area television audience. A television station lives or dies by the numbers, by the ratings figures that determine market share and program popularity. A single digit difference in share points means a million dollars in advertising revenue in a market of Detroit's size.

"You should see the crowd around this computer after a particularly important show," chuckles Reid-Nickerson. "They jam in so tight I can hardly reach the keyboard."

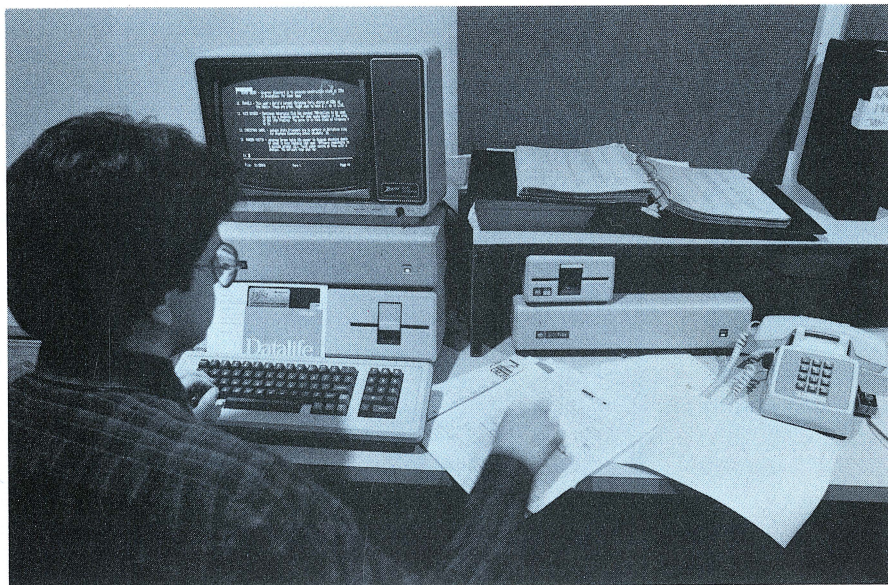
Reid-Nickerson is impressed by the Apples in use at the station.

"I think the thing that most convinced me to use them, both here at work and at my home, was the availability of software," he says. "They are a super reliable computer to be sure. But there is so much good software out there that it is rare that I can't find just what I need, for even the most complicated application, right off the shelf from some commercially available program."

As convenient as they have made things, no one will credit Apples with the station's dramatic improvement in the ratings. Hard work and dedication have done that. For when the station was taken over by Post-Newsweek Stations, Inc. some five years ago, it was a distant third in the Detroit market. Some days, its 6 p.m. news broadcast performed so miserably that it was fourth, beaten out by reruns of "Happy Days" on an independent UHF station.

Now, that has changed. The station is a solid number two in the market, even topping its number one-rated ABC competitor some days. There's a new mood at the station, matching the new digs of its ultra modern studios. There's a feeling of momentum, a "we're going to do it" attitude.

And somehow, the blinking green-screens of the Apples seem to fit right in.



Futures Editor Dan Smith at his newsroom Apple, updating his files of future stories that need to be followed-up by the station's producers and reporters.

makes for some mighty crowded roads.

There's an old joke in Detroit that there are only two rush hours. Daytime and nighttime. And they both last 12 hours.

While that may be an exaggeration, the traffic is heavy and keeping informed of bottlenecks, construction slowdowns and accidents is a major preoccupation of Detroiters. WDIV is the only station in the market and one of a handful across the country that can show up-to-the-minute maps of the freeway system that pinpoint the slow spots. These maps, which are aired between 6 and 9 a.m., at noon and during the busy 5:30 to 6:30 p.m. after work commute, are also supplemented by "speed graphs," special bar graphs which illustrate the

stations's anchorman bought an Apple //e for his use at home. And the newsroom's investigative reporter purchased his own //e to work on his projects.

But perhaps the best testimonial to the Apple's versatility comes from the man who should know the most about computers at the station. Linc Reid-Nickerson is the technical manager, the man responsible for keeping the millions of dollars of electronic cameras, switchers, recorders and technical equipment functioning.

He, too, recently went out on his own and bought an Apple //e for his personal use at home.

At work, though, Reid-Nickerson uses an Apple ///. He keeps crucial test results, specification readings and equipment inventory documenta-

Flying Colors

a review by
Jillian D. Milligan

In the last 2 to 3 years, we have seen the introduction of a number of graphic software packages into the Apple marketplace. A large category within this group are graphic creation programs designed to use multi-purpose input devices such as the joystick, game paddles or the new touch sensitive pads. Each of the programs offers a different range of drawing options and graphic effects. **Flying Colors**, by John Norby and Glenn Albinger, is distinct in the category of graphics creation software because it is comprised of two separate programs. The graphics creation program is used to paint pictures or draw charts and graphs



with the computer. The bonus is a picture presentation program, called the *Slide Projector*. The Slide Projector lets you show your pictures quickly and easily on the computer screen.

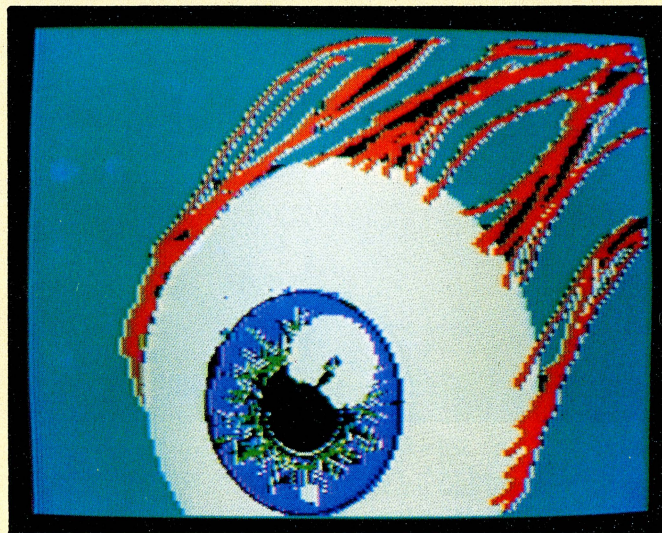
OPTIONS, COMMANDS and CHOICES

By pressing "F" for Flying Colors (as indicated at the bottom of the colorful opening screen), you are transferred into the graphics creation program. The instruction manual leads one to believe that any input device will work with the

program, including game paddles and the KoalaPad. However, as the instructions seemed to be geared toward joystick use, I used the joystick for my exploration of the program.

The main menu is located along the right side of the screen. It includes a basic DRAW command for free-hand sketching and the commands to engage computer assistance to draw LINES, BOXES and CIRCLES. There is a FILL command to fill a shape with color, and ALPHA, that lets you type text on the screen along with your drawn image. This main menu is also the key to getting to the second menu, the brush and color menu. When the MENU command is selected, the brush and color menu replaces the main menu at the side of the screen, providing a choice of 11 brushes of varying size and shape, and 22 drawing colors. Additionally, the program includes common disk utilities to allow you to save, load and delete your pictures.

Using the commands from the menu requires a mere twist of the joystick and click of a button. The joystick controls the on-screen marker, called a cursor. By moving the cursor in position over a command and pressing the joystick button, the selected command is activated.



READY TO DRAW

Moving the cursor into the drawing area and holding down button 0 gets you going in a free-hand manner. The cursor is like a brush or pencil that leaves your drawn trail behind it. Letting up on the button disengages the "pencil" from the "paper" and allows repositioning of the cursor without leaving a mark. You can use the entire screen area to create your picture. Although one or the other menu resides to the right side, they can be moved out of the way by bumping the cursor into the edge of the menu. Joystick button 1 also is available as a toggle to turn the main menu on and off as needed.

To draw a line, you need to first select the LINE command from the menu. To start, you move the cursor to the point where you would like your line to begin. Pressing the button once "pins" down this end of the line. Next you stretch and twist the line by moving the joystick until it is at the length and position you want. Click the joystick button once more to pin down the ending point of the line and zip -- the line is drawn for you in the color and brush you have chosen.

Creating circles and boxes is just as easy and fast.

Any outline shape can be quickly filled with color. Once you have selected the **FILL** command off the main menu, you are transferred to the color-brush menu to choose the color you want to fill with. The cursor is simply placed within the outline to be filled and at a press of the joystick button, color pours onto the screen filling the shape from edge to edge.

Speaking of color, the Apple is not without some limitations due to the design of the color hardware. **Flying Colors** thoughtfully suggests creating your picture using one or the other of the color charts available to you on the color menu, but not both. If you follow this advice, you will have the most reliable results with color.

THE MATTER OF CONTROL

Because of the ratio of physical movement at the helm of the joystick to the movement of the cursor drawing on the screen, a tiny move on the stick causes quite a bit of movement on the screen. Without expert hand-eye coordination, images can look drawn by a two year old. This is a common factor when using a joystick as a graphic input device. I do the best I can with the joystick and then use **Flying Color's MICRO** command.

The **MICRO** command puts you into a special drawing mode where the ratio of hand movement to on-screen movement is more equal and more manageable. In **MICRO** mode, a small frame appears on the screen over your unaltered picture. You slide the frame over the area of your drawing on which you wish to work. Any cursor movement within the frame is in smooth, tiny **MICRO** movements. **MICRO** mode makes working in single pixels (one dot on a screen of 192 x 280) for details and corrections a reality. If you want to, you can even do your whole picture in this mode.

The program works smoothly overall. Although at times implementing a command with a different brush and color could require a series of 4 to 6 moves and clicks, selecting and using the basic drawing commands included is easy. Furthermore, using them does not interfere much in the creative process as you don't need to stop and press keys or switch to a completely different screen to make menu choice.

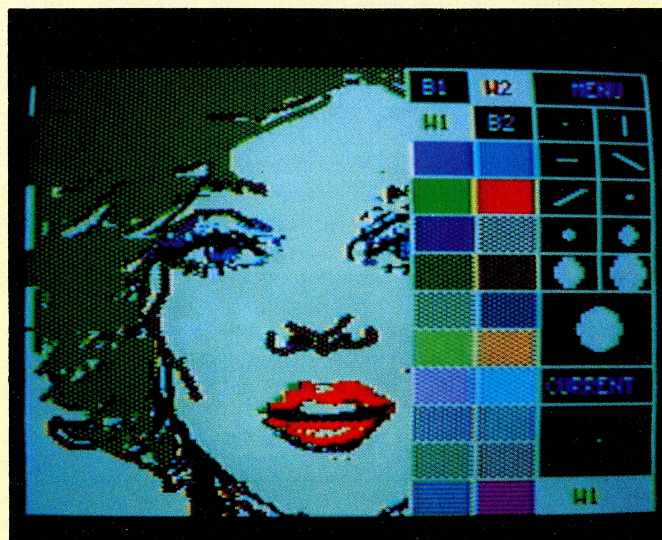
AND NOW, THE SHOW

Selecting **P** for Projector from the opening **Flying Colors** screen takes you into the Slide Projector part of the program. The Slide Projector lets you display pictures on the screen in a set sequence. By using the simple linking system offered, you can show more than one disk full of pictures. If you create many graphics and like to show them, you will appreciate this program.

The main Slide Projector menu provides the option to set the picture advance to automatic or manual. If automatic is selected, you can set the length of time each picture is to remain on the screen. If manual advance is used, you can connect a joystick or paddles and use the device buttons to control the show. You also have the option to see pictures blend into each other when they change, or to have one picture completely cleared before the next appears. The latter mode is the most like a real slide show.

Creating a slide or picture sequence is painless. After

choosing the **SELECT SLIDES** option from the main menu, the Slide Projector reads a catalog of pictures off a disk of pictures you have popped into the disk drive. The program gives each picture a letter designation so you don't have to type out all your picture titles in order to sequence them. Arrow keys move a cursor up and down a list of numbers from 1 to 16. (Each slide show disk can have a maximum of 16 pictures on it.) Matching letters to numbers creates the sequence of pictures to be shown. For example, the on-screen catalog of pictures labels a picture titled "Fruit Bowl" with the letter 'C'. To see "Fruit Bowl" as the seventh picture in the show, use the arrow keys to glide to the seven



and then type a 'C'. A **REMOVE** command lets you quickly delete a slide from the sequence. The slide sequence or slide tray, as it is called in the instructions, is saved to disk automatically as you return to the main Slide Projector menu.

Unfortunately, you can only start your slide show by pressing the **START PROJECTOR** command off the main menu. The program is not designed to let you create a presentation disk that would allow you to show your masterpieces independently of the **Flying Colors** disk.

Another more serious problem is the instruction's claim that you can show pictures created with graphic creation programs other than **Flying Colors**. The Slide Projector, however, reads your disk looking for 34 sector binary files. I have used numerous other graphic creation tools and it was bad news discovering all my pictures were saved from these programs as 33 sector binary files. They would not load into the Slide Projector. A not so quick remedy requires loading pictures individually into the **Flying Colors** graphics creation program. When they are saved back to disk, each picture is saved as 34 sectors.

THE SUM OF TWO PARTS

On the whole, **Flying Colors** offers a useful combination of simple, but well-designed features. It can be used not only to generate, but also to present computer art or modest business graphics. It is also easy enough to be used by school children to illustrate and show an on-screen story. There is nothing really fancy here, but if you can handle a joystick with some accuracy, you'll find **Flying Colors** to be a practical, worthwhile program. 🍏

The voice on the other end of the telephone was unmistakably young.

"So you want to know about hacking?" he asked, trying to sound older, more sophisticated than the nervousness in his voice indicated. "My name is the Wizard of Arpanet."

On the other end of the conference line another voice interjected. "And my name is the Joker. I'm from Long Island. The Wizard is from Detroit."

The two teenagers called me at work, WDIV television in Detroit, where I am an investigative reporter. They had used their PC's to generate "Blue Notes," or special electronic tones that bypass telephone company billing procedures.

Although only the two were on this conference call, they bragged that their illegal "Blue Notes" just as easily could have had ten or more different parties on a coast-to-coast call with the phone company none the wiser. Blue notes, I learned, were just one of several computer-aided ways these two and many more youthful electronic thieves were ripping off the phone company.

The Wizard and Joker had telephoned me after I had spent weeks hanging out on the computer bulletin boards, leaving messages about how I'd like to do an in-depth story on hacking, the newest crime of the eighties in which computer hobbyists use their PC's to electronically break private and governmental data banks around the country.

HACKERS

by Mike Wendland

In the early days of the PC craze, the hackers were mostly a mischievous lot. Young boys and girls would hole up in their bedrooms. While their parents thought they were doing homework, they instead would use their PC's and a modem, which hooks up the computer to the telephone line. Once on to a mainframe computer, they would "hack" out various log-on procedures until they discovered how to get into, say, school system attendance rolls, grade reports, or, sometimes, the big computer networks like Telenet or The Source. Oh, there was a lot of moaning and some minor financial damages from time to time when the electronic trespassers were caught, but the early hacking was mostly exploratory, a sort of natural outgrowth of computer interest and a teenager's constant need to test authority.

But then, last summer, a group of Milwaukee area teens made nationwide news because hacking efforts had the potential for serious damage. They broke into the private and supposedly confidential data banks of major hospitals, corporations and even top secret governmental agencies.

The FBI actually raided the homes of several members of the looseknit hacking fraternity, which called itself the 414's after Milwaukee's area code.

After a flurry of publicity, the story died down. But I was curious. Surely, I thought, these Milwaukee kids weren't the only hackers who had gone beyond minor hacking. So I began my own investigation. At home, using my personal Apple //e and a Hayes Micromodem, I set out to learn how extensive the problem was by dialing into the hundreds of hacking bulletin boards around the country.

But I couldn't do so, at least initially, as "Mike Wendland, reporter." That would scare off the people I most wanted to make contact with. So, like most of those who use the hacker, or pirate, bulletin boards, I needed an pseudonym, or "handle."

I became "Apple Polisher."

Two months later I broke a major story, a story that revealed how the computer hacking craze was bilking millions of dollars a year from the various private companies that provide long distance telephone service. I documented how the hackers have routinely tapped into a computer network used by the private contractors who do the military's highly sensitive research and developmental work. And I uncovered numerous examples where computer hackers intentionally destroyed customer account information at brokerage houses, altered employment records at several large corporations and even got into a computer used by a large regional Midwest bank to keep track of its branch offices.

Hackers had become more daring; no longer content to just "look" into confidential (and sometimes highly classified) corporate and government computer files, some of these people were altering and/or destroying vital information.

But I'm getting ahead of myself. Back to how it all started.

In the fall of 1983, I began research for an investigative series of television broadcasts about privacy and the Orwellian version of 1984. My assignment was to see how close the nation really was to the fictional view taken by Orwell. I traveled the country, interviewing government and business leaders, computer security officials, credit reporting agencies and consumer advocates.

The story came together fairly well. The comparisons to Big Brother and our computerized information society were obvious.

But as I wrapped up the interviews and began production, I found, in reviewing my research, a chilling new aspect that was not foreseen by Orwell. I was sitting in the highrise office of a former military intelligence officer in Washington who now works as a private consultant on computer security. I was looking out at the familiar landmarks of the nation's capital when he pushed across a xeroxed copy of a Time Magazine article on the arrests of the 414's. "Here," he said, "This is what scares us the most these days. This case is just the tip of the iceberg."

Hard on the heels of last summer's big movie hit "War Games," the arrests of the Milwaukee teens was big news. But the story faded from the front page almost as quickly as it hit.

Don't worry about Orwell's Big Brother, the problem in 1984 is with Little Brother!

An FBI agent I know in Los Angeles confirmed the problem a few days later. "Orwell's 1984 will never really happen as far as Big Brother goes," he told me. "The government has too many watchdogs, too many legislative and judicial constraints to ever approach Orwell's vision. It's Little Brother that you should be looking into. These computer kids are breaking into confidential files, ripping off the phone company to the tune of millions each year and threatening the privacy of more people than you could ever imagine."

In Chicago, I was told of a brokerage firm that had many of its computerized account files erased or altered by electronic trespassers who managed to get into the firm's secret data files through a telephone hookup to its mainframe computer. "We've solved the problem by changing our log-in system and encoding our files," the firm's president told me. "All we know is somebody who called himself 'The Happy Hacker' dialed into our system and, 'poof,' there went a dozen key files. We're just fortunate we had backed up the data and could re-enter it."

The story had changed, taken on a new and much harder edge than what I first set off to report.

But how to get at it? To really develop the story, I would need access to those who were responsible for the problem. There was only one place to start.

My basement.

It is there, in a small paneled office tucked away in a far corner, that I do most of my writing on an Apple //e. With the addition of a Hayes Micromodem, my computer became attached to my telephone line. From there it was a quick trip to the world of the computerized bulletin board, or BBS in the lingo of the hackers.

By conservative count, there are an estimated 2,000 bulletin boards in use by computer hobbyists across the nation. Most are innocent, used by hobbyists to exchange information on programs, list computer equipment for sale or swap or to "ragchew," or hold conversations and leave messages for other modem-equipped enthusiasts.

But there are other boards out there that are used for other purposes. There are about a hundred sex boards around the country offering all sorts of illicit or unconventional services. There are about two hundred "pirate" boards used by those who illegally copy and distribute protected programs. And then there are probably a similar number of "phreak" boards, used by phone phreaks (sic) who exchange information on how to beat the phone company out of long distance charges.

"These bulletin boards constitute an entire underground network," an FBI source told me. "Within hours, pirated programs and log-on information to even the most sophisticated system are in the hands of hackers from coast-to-coast."

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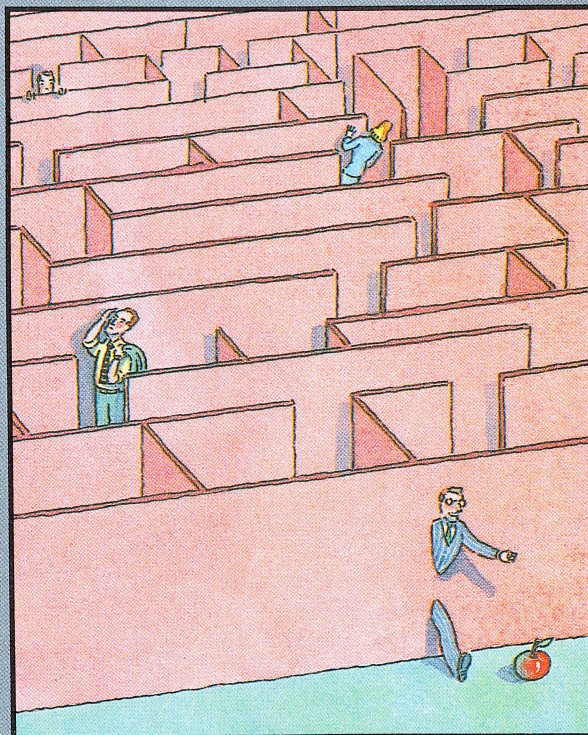
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AUTHOR:

Cornelis Bongers

SYSTEM REQUIREMENTS:

At least 64K, Applesoft, DOS 3.3 and one Disk Drive. Operates with all Applesoft-Compatible computers including the Apple IIe and the Franklin ACE. Apple II Plus requires RAM card — 16K or larger.

PRICE:

\$49.95 postpaid

ORDERING INFORMATION:

If your Apple dealer doesn't have AMPERSOFT you may order directly by mail or phone. (Mass. residents please add 5% sales tax.) We also accept VISA and MasterCard.

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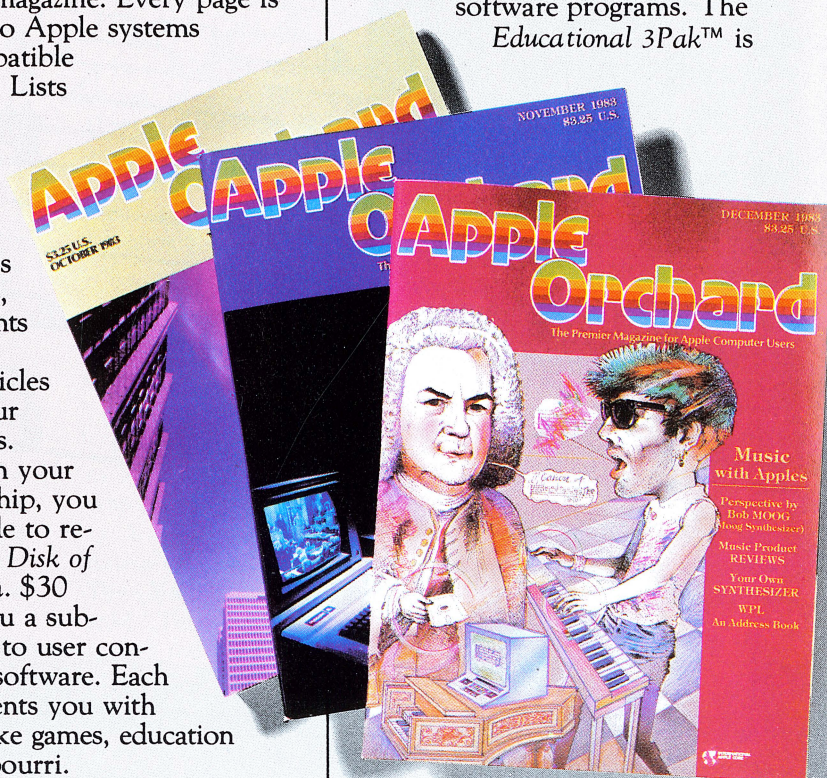
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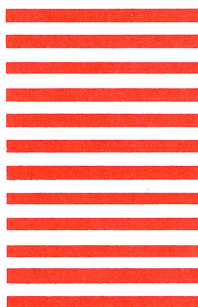
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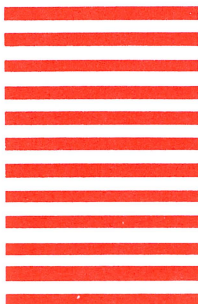
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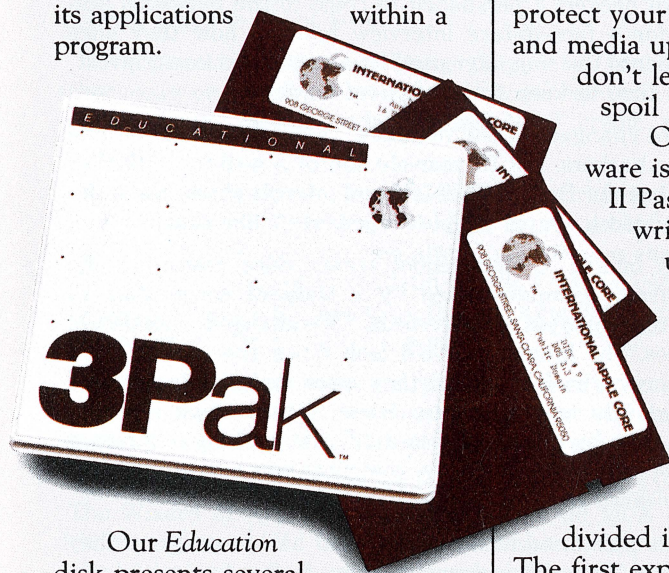


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the first in an ongoing series of theme packaged programs. It contains three disks offering programs to help you learn Applesoft and Machine language with a series of Math Tools.

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My initial foray on the boards was pretty straightforward. I left a brief message on the public notice section of a half dozen BBS in various parts of the country. I identified myself as a reporter, said I was interested in doing a story on hacking and would keep all sources confidential. I then typed in my office telephone number.

The next morning at work, I had three return messages waiting.

"Hey, Wendland, I don't know what's going on but you sure are getting some pretty weird calls these days," said my assignment editor as he handed me the phone message slips. It was the names given by the callers that caused him to shake his head. They were hacker "handles." One called himself "Captain Microchip." Another was "Fast Tracker." The third caller identified himself as "The Destroyer."

Although none left return numbers for me to call, all indicated they would contact me later in the day.

And over the next several weeks, they did, along with many other hackers from all parts of the country. I approached the research in two ways. After interviewing the hackers as a reporter, I then attempted to verify what they told me by posing as a hacker myself.

At home, on my own computer, I would log-on the various bulletin boards as "Apple Polisher." I used the most active pirate and hacking boards cited by the hackers who I had previously interviewed formally as a reporter. I even received special authorization to use some of the "security clearance only" boards.

Access to the deeper levels of bulletin board systems is gained only after being "cleared" by the system's operator.

These are secret "boards-within-a-board". On most of the pirate BBS, there are different levels. The average and infrequent caller gets on the public or non-classified boards; but to get deeper into the system, where the hackers keep their "good stuff," requires clearance.

To get it usually means leaving a message to the board's system operator. He will then usually ask for an address or a telephone number.

I was called only several times on a special line I had installed just for my undercover role. The sysop, as he is called on the BBS, seldom asked anything more than what my hacking interests were. I posed as a 19-year-old college student, just getting started in hacking.

Once authorized to utilize the pirate and phreak sections of the various boards, I saw the hackers in operation, posting and exchanging tips on how to dial into various computer networks.

In my research, I met and interviewed scores of hackers. Since the only way they would talk to me was if I promised them anonymity, I can't provide too many details about their hometowns or exploits. Indeed, I can't even use some of their real handles because several have been visited in

recent months by the FBI and are currently suspects in ongoing investigations.

But the hackers, mostly interviewed separately over the telephone or through electronic mail on some of the most active boards, told me of scores of electronic break-ins. Most, they said, were innocent, leaving modern day "Kilroy Was Here" type messages on supposedly secure business and government mainframes.

But others were not so fun.

Two hackers I persuaded to come to the television station for a face-to-face interview told me how they once broke into the computer used by a large west coast investment firm to keep track of client holdings.

"We changed all the numbers," gleefully confessed one of the hackers, the 15-year-old son of a well-to-do banker in suburban Detroit. "We altered interest rates, the number of stock shares people owned, stuff like that."

His buddy, a high school senior, once dialed up the mainframe computer used by a Midwest corporation to monitor employee sales records. "We changed commission figures," he laughed. "We'd look down the columns and the guys who looked like they were doing the worst we turned into star salesmen. Some employee we declared dead, just by typing in 'deceased' and pushing our return key. As far as the company computer was concerned, they just ceased to exist."

This pair brought along a special hacker program they created. They ran a demonstration on the Apple /// I use at work.

Just as the teenaged star of the movie "War Games" used his computer to scan through hundreds of telephone numbers looking for lines answered by computer tones, these two real life hackers had a program that tried various telephone touch tone numerical sequences.

The purpose was to find special touch tone codes used by customers of the various private long distance telephone services.

"We'll use it late at night, just before we go to sleep," explained one of the hackers. "We dial up the access number to the private long distance service company and then let the program go. As it rolls along trying various combinations, it registers and records to disc each time it hits a good code that brings a dial tone. When we wake up in the morning we go to our disc and print out a whole list of good codes. Then we can call free anywhere we want."

Many hackers consider your telephone credit card number to be an item of barter. Your number is not that hard to get!

Routinely, hackers trade and barter these long distance codes, as well as telephone company credit card numbers. They'll offer them to get sign-on information to a mainframe they're trying to crack. Some trade the numbers to get pirated programs. Others just like to give them away for a sense of power.

The problem is severe. Long distance dialing services are now working with the FBI and state law enforcement agencies in many parts of the country, trying to halt the rapidly escalating use of pirated numbers.

In Florida, an 18-year-old female hacker from Michigan is facing criminal charges for racking up more than \$40,000 in illegal charges. In New York, a Long Island physician received a 505-page bill for fraudulent charges totaling \$61,180. For a two-month period earlier this year, the Michigan Association of Governmental Employees received a bill of \$320,984. The normal bill for the 2,000-member union is about \$600.

Government investigators blame these and scores of other cases on hackers who use their home computers to spread private access codes or telephone credit card numbers.

Who are the hackers calling? "I knew this girl from Germany who was an exchange student in my school last year," one hacker told me. "So after I picked up a charge card number on one of the bulletin boards I started calling her pretty regular. It's great, we talk for a couple hours at a time and it doesn't cost me a cent."

Most of the illegal phone charges are racked up calling bulletin boards across the country and then trying to break into private and government computers.

One of my most valuable sources was a hacker named "The Wizard of Arpanet." He is a 15-year-old all-A student from Detroit. He takes his hacker's handle from the defense department's Advanced Research Projects Agency Network, or Arpanet, a private computerized research network used by hundreds of defense contractors.

It was through the Wizard and his friends that I learned about "the Trojan Horse," which is a favorite trick used by the hackers to capture information from the computer systems they invade.

"What we do is modify the target computer's regular program through some internal instructions," explained a 16-year-old hacker. "We rig it up so that it looks normal. When a legitimate user comes on line, he logs in with his password just like always. But the modifications we made captures all that information and writes it to a new file. Later on, when we get back into the computer, we call up our Trojan Horse file and we've got all the sign on information and passwords we need. Then we can go anywhere, see anything. It's all ours."

Routinely, the Wizard and his coast-to-coast pals tapped into Arpanet and other government data banks stored on such commercial networks as Telemail, an electronic mail network operated by the GTE Communications Corporation in suburban Washington. Although the government maintains none of the information the youthful hackers had access to was classified, their penetration of the supposedly secure system was highly embarrassing. Authorities conceded that, among other things, the hackers were able to rummage through the electronic mail of the National Aeronautics and Space Administration.

The break-ins occurred for a three month period last year. Louis Lushina, the man in charge of NASA's electronic mail service, said the hackers created their own personal passwords, opened new files for themselves and their friends and actually destroyed a number of messages and

files stored on the system by the space agency.

In October 1983, the homes of the Wizard and 14 other hackers around the country were raided by the FBI. The computers used by the hackers were confiscated.

I remember visiting the Wizard's home the day after the raid.

"They just came charging in and went straight for (the Wizard's) bedroom," his astonished mother told me. "He was at school. They asked me if I knew what he was doing with the computer. I said he was doing his homework. At least that's what we thought he was doing up there every night. That's why his father and I bought him the computer."

The Wizard and most of his pals were juveniles. The youngest in the nationwide hackers ring was 13. Investigators say most of them regularly communicated with each other through computer bulletin boards and by plugging into long distance or coast-to-coast telephone conference calls. According to officials, those calls were illegally made through the use of "Blue Notes" or dialed up with pirated code numbers.

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by accessing corporate or govern-
ment computers!*

It was time for the government to act. But to make an example, they needed adults, not children. In California, two hackers, one 18 and one 19, were officially arrested about a month after the Wizard was raided. Charged with 14 counts of illegally gaining access to information at universities and agencies doing defense department research work, the two caused about \$200,000 damage to various programs, according to a district attorney's report. The government has said that these two, and a third hacker identified only as "Kareem," also penetrated the network's "very sensitive" information.

The hacking story did not end when my series of reports aired. While stories like mine focussed nationwide attention on the problem and have helped bring about new laws and law enforcement attention, indications are that the hackers are becoming more sophisticated.

"We've been very fortunate so far," says an FBI agent who worked on the case that resulted in the raid against the Wizard and his buddies. "For the most part, these have been 16 year old kids. And they are hacking more out of curiosity and mischievousness than meanness. But the bottom line to us in the bureau is national security.

"We think it's just a matter of time before not so friendly interests from another country get into this. It may have already happened, for all we know. So in a way we owe these kids a debt of gratitude. They've unwittingly exposed a problem we didn't even know existed. And you can bet we're going to keep our guard up from now on." 🍎

CMS Market Counselor

Review by Gary Wollin

Capital Management
System Inc.
Denver, Colorado

Imagine! A computer program that doesn't try to be all things to all people. Well, that's exactly what **CMS Market Counselor**, produced by Capital Management System, Inc. of Denver, Colorado, is.

Market Counselor was designed to assist the stock market investor in making decisions about intermediate term timing, and to help provide a more consistent, methodical approach to an investment program. It requires an Apple II Plus (minimum 48K), //e, //c, or ///, and a minimum of one disk drive. If you don't have two disk drives though, the constant changing between program and data disks will drive you crazy.

The program comes with one disk that contains the program and historical stock market data files. By returning the owner registration form, you receive the second disk containing a back-up of Market Counselor and stock market data current to within a week of its shipment. In addition, you will need to provide one new diskette that will be utilized as a "work disk".

The program is designed to allow you to enter daily information and obtain both tables and graphs for the Dow Jones Average, intermediate index advances, declines, advance/decline index, relative strength index, up volume, down volume, up/down volume, total volume, specialist short

ratio and odd-lot ratio. While you can find any number of much more sophisticated programs that generate more ratios and indices, including on-line programs, these programs can cost you hundreds and hundreds of dollars more.

Frankly, since I am a long-term investor and a fundamental investment analyst rather than an intermediate-term technical trader, I found that the constant updating of data was more than I could stand. Please also factor in that I'm a stockbroker, so I have the charts and tables readily accessible to me. When I showed Market Counselor to one of my associates who is a very good stock market technician, he was impressed with its capabilities.

The data disk has only 60 days of numbers but when I spoke to Craig Rowlen, owner, writer, programmer, president, salesman, etc. he told me that it shortly would be expanded to 120 days. The manual that comes with the package has the same weakness I have seen before — it was written by a programmer and sometimes appears unclear. Does this sound familiar to you?

All in all, if you are a stock market trader who believes that you need "hands on" data manipulation, here's the Gary Wollin price/performance index: for \$149 the **CMS Market Counselor** gives you more than your money's worth.

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Circle HelpCard No.037

THE VIDEX PSIO CARD

Review by Neil Lipson

Videx, known for all of its high quality products, has done it again. They have developed a state of the art, dual-function card. It has both parallel and serial outputs. In addition, it can do graphics dumps, which is rare for a card of this type. I will give a breakdown of the various aspects of the package and the included documentation.

The Manual

The manual is top notch in every respect. It is typeset, which makes readability much better. It is broken down into five parts: introduction, operations, software interfacing, hardware interfacing, and appendices. Everything is spelled out, so a beginner can pick it up fairly quickly. Useful diagrams are also included. There is also a general troubleshooting guide. The table of contents is so complete, you almost do not need the index to find certain items. I would say as much time went into the manual, if not more, than went into the card itself.

PSIO OVERVIEW

The PSIO dual function card is a state of the art Apple II peripheral. It contains a serial RS-232-C Input/Output port and a Centronics compatible parallel output port. Both of these ports may be used simultaneously. This is done through a technique called "phantoming," which allows the PSIO to actually appear as two separate cards in the Apple or Franklin.

The PSIO uses a sophisticated chip called NOVRAM (non-volatile random access memory) to maintain its configuration options. This eliminates all the confusing switch settings required on most other cards. NOVRAM has the power and flexibility of standard RAM with all the con-

venience of ROM. You may configure your PSIO card via software and save it to the NOVRAM. The contents of the NOVRAM become permanent when the NOVRAM save button is depressed. NOVRAM will then remember that configuration without the need for batteries.

The wide range of programmable options include variable baud rate selection (up to 19,200 baud), forms width, form length, auto linefeed, linefeed mask, Xon/Xoff protocol, lower case masking, shift wire mod support, duplex mode, parity, data format, video echo mode and a slot echo mode. You may, for example, send text to your printer, to the 40 column display, and your optional 80 column display card simultaneously.

With the PSIO card, you may connect a wide variety of devices to your Apple computer. Perhaps the most common service would be to connect the parallel port to a parallel printer and the serial port to a modem for communication, via a telephone line, to other computers.

Features of the PSIO card

Some of the interesting features include the memory button, the two cables for both parallel and serial, and the separate DTE and DCE plugs. There is a reason for these two plugs. The type of plug needed for using the card as a modem is slightly different than using the card for a serial printer (usually lines 2 and 3 are switched). Without this dual plug arrangement, you would have to use some type of break-out box to switch these lines, or otherwise resolder wires, which is a real hassle.

The software runs smoothly and the card can be configured in almost any fashion. There are very few cards on the market that have this versatility.

One word of caution; read the

manual. With some cards and programs you can wing it. Not with this card. It does too much. Stick with it and you will be successful. It would be nice if there were a few suggested configurations and what they mean, but this is really asking too much from VIDEX. You are warned not to phantom to microprocessor cards such as the Z80 card.

You can, if you want, re-configure the card temporarily without pushing the save button, so you can change things when needed. There are an infinite number of settings for the configuration program. There is even a useful delay after carriage return feature if you have an old printer that does not have handshaking and loses characters when the carriage returns.

If you have a problem, it is probably one of the following:

1. printer is off line.
2. wrong port is phantomed.
3. incorrect baud rate.
4. incorrect data format.
5. incorrect parity.
6. Xon/Xoff may have to be disabled.
7. Bad cable connection or wiring.

The manual has a tendency to think that the only computer you are using will be an Apple, but this is a small point.

PSIO Commands

The PSIO has a complete set of commands to do a variety of functions. You can switch between parallel or serial, change the forms length, turn on and off auto linefeeds and every other conceivable function that you can comprehend. The commands are fairly straight forward and are covered in complete detail in the manual. One suggestion to VIDEX would be to include a reference card to summarize the commands, as it could be cumbersome to constantly go back to the manual. The card is so sophisticated that unless you use the card constantly, you'll never remember the command sequences, which is true of about 95 percent of sophisticated hardware and software products. This flexibility is a tribute to the company. One nice command is the break command, Control A - - Control B. This works only when in the terminal emulation mode. I wonder if these commands were coordinated with the Ultraterm commands, but did not

have a chance to check them out. I'm somewhat afraid of the conflict that existed years ago with the D.C. Hayes modem and the old Videoterm card where the control A conflicted. I'm sure the company is staying on top of matters such as this, however. Detailed instructions are given to have the computer invoke the terminal mode from an Applesoft program. There is very little left to figure out with this setup.

Hardware Design

The card is well designed, which is really an understatement. You really have to be an engineer to appreciate all the wonderful features that are included. One very nice hardware design that was apparent to me was the ability to change from a positive to a negative strobe. Why in the world would you want to do that? Well, it just so happens that some of the custom Okidata 80 printers made for Sperry Univac need the negative strobe, and this card will provide such a signal. Keep in mind that you have

to know this in advance otherwise you would never guess what is causing the problem. The card is packed full of these wonderful items. The firmware will allow printing of graphics onto all of the dot matrix printers. Now if they only had some firmware that would allow graphics dumps to some of the letter quality printers, this card would be even better than it already is.

Card specifications:

Firmware Rom: 2716 or 2732, 2k or 4K
 Ram: XD2212 NOVRAM 64 x 4
 DOS, Pascal, and CP/M compatible
 Parallel Port: Centronics compatible
 Output Only
 Positive or negative strobe and acknowledge
 Serial Port: RS-232-C compatible
 ACIA: 6551
 Baud rates: Software selectable 50-19200 bpg

Printer port

Operating modes:

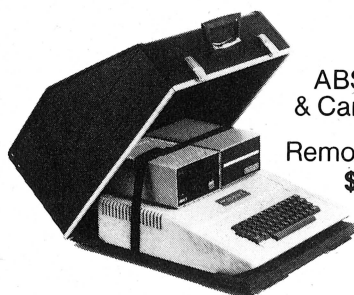
Remote terminal port
 Half duplex terminal emulation
 Full duplex terminal emulation

CONCLUSION

For those of you that have difficulty interfacing, it is safe to say that if this card will not solve your problems, probably nothing else will. The PSIO is by far the most flexible of any combination parallel or serial card that I have seen. Even in my testing, I could hardly cover all the pertinent points of the card.

If you have two printers, one parallel and one serial, this card is the way to go. If you have a parallel printer and want to send the modem information through the serial, it is also the card of choice. All in all, it is top notch, and I recommend it highly.

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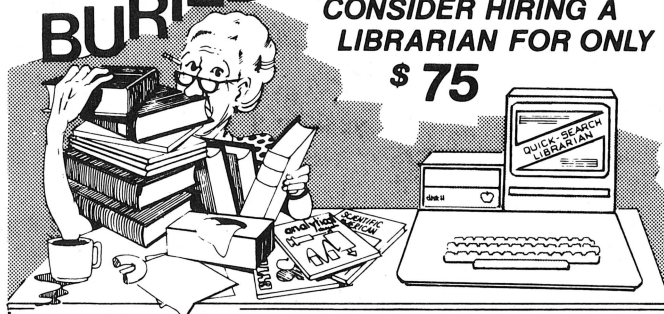
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APPLESEED^{T.M.}

Apple Compatible Hardware for Dedicated Applications

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Designed for use in systems where a full Apple computer may not be necessary or desired, the APPLESEED Bus system retains all the essential features of an Apple system, including mother board compatibility with almost every plug-in board available for the Apple II.

Programs are developed in assembly language on a standard Apple II. Upon completion, a set of EPROM's are blown and inserted into the APPLESEED Bus system, which then takes control of program execution.

You buy only what you need for your application; gone are the built-in keyboard, the consumer-oriented packaging and graphics subsystems. Cost, size and power consumption are substantially reduced while flexibility is greatly increased. Compatibility with a multitude of sophisticated programming and hardware add-ons, widely available for the Apple II, has been fully retained, providing a wide range of options for designing customized systems. (Applesoft[®] PROM's are not included.)

A sampling of APPLESEED Bus components:

CPU BOARD The 6502 has been removed from the mother board and included in this card, which also contains the clock circuitry for the system.

64K RAM BOARD 64K of dynamic RAM with provision for control to be used in the normal Apple II conventions; deleting COOO-CFFF and software control over the DOOO-FFFF area.

EPROM BOARD Jumper selectable for 2716 (EPROM) or 34199 (PROM); blow 2716 assembly language programs and then run them in this EPROM board. Jumpers allow selection of software on/off, initialize on/off and other controls.

UART BOARD Software/hardware select all standard EIA baud rates. The board supports four 6850 UART's which allow four independent input and output EIA lines. Each UART is fully programmable for parity, bit length, baud rate, etc.

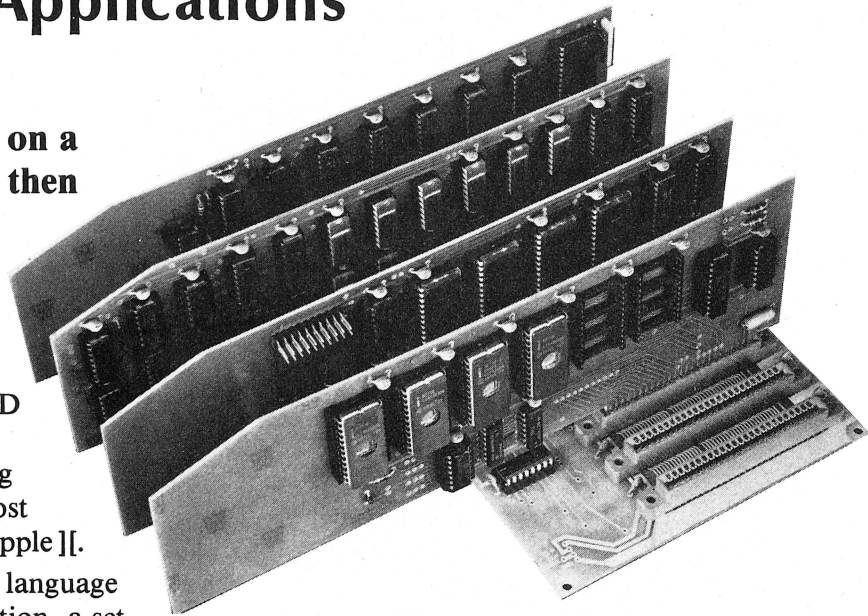
UNIVERSAL BOARD The APPLESEED Universal board contains the following: One 2716 socket for an F8 PROM, one 2K × 8 bit RAM (0-7FF), one UART channel for serial communications, 8 parallel INPUT lines (TTL), 8 parallel OUTPUT lines (TTL), device decode for one additional standard slot-dependent board, support for standard Apple II style keyboard, and a power supply connection. Each feature is independent and any combination may be used simultaneously. The Universal board is designed to be used with the APPLESEED CPU board.

TEXT BOARD The TEXT board is designed to add the conventional TEXT (page 1 and page 2) to an APPLESEED system. The board generates composite video to plug into a standard monitor or T.V. modulator. The board provides 40 columns × 24 rows in each page and is not slot dependent.

MOTHER BOARD 10-slot motherboard is fully compatible with most Apple add-on cards currently available.

Please call or write for prices and more detailed information on these and other APPLESEED Bus products.

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PHOTONET:

a communications network for photographers, photo-researchers, advertising people, and authors.



Review by Lenore Wolgelenter

Photonet
250 W. 57th Street
New York, N.Y. 10019
(212)307-6999

If cliches have some validity, then it is true, a picture can communicate a thousand words. However, to find that right picture, it sometimes takes hours of searching. At other times it is a game of telephone tag as people leave messages on answering machines or send letters. Letters take time to write, and then one must pray that the air mail special delivery system is really working.

For many a professional worker, the world is getting smaller and people communicate needs via communication networks. This is true for commercial photographers, photo-researchers, advertising people and authors. PHOTONET is the first communication and information network for photography, advertising and publishing. Since most artists are still somewhat hesitant and fearful of this thing called

"computer technology," Len Kaltman and Patricia Woodson have devised a simple, easy to use system that seduces the fearful.

Photonet is a menu driven system which includes a bulletin board for general trade information (incorporating regional, national and international coverage). Electronic mail can mean instant communication with photographers on location or to send out a search for a particular photograph. Freelance photographers can make their services available and advertise their existing portfolio. As more people join the network, there are plans to get an "on-line magazine" published. At the latest count there are 130 cities with local access lines in the U.S.A.; the network stretches to major cities in Canada, France and England. One of the best parts of this service is its cost -- a one time \$49 fee and an hourly rate of \$24. Given the price of a "send-it-quick letter," the range of services and cost vs. time of telecommunications for photographic agencies, this service is an economical way to proceed into the future.

The uses for this network are far reaching and effect what most of us look at every day -- without our knowing it -- locating a photograph for a textbook, a particular image for an advertisement, medical, industrial and travel photos, pictures of rare flora and fauna, or a photograph of a special architectural structure located 3000 miles away from the immediate need. Communicating via a computer network also allows photographers and agencies the freedom to move away from large urban areas where it is all happening and still have immediate access to peers.

Logging onto Photonet allows the individual to access all types of agencies and individuals working in this medium. Like all networking systems, the photographer or administrator is no longer limited by time zones, work place or the postman. Many a user has had to call the east coast and they are in a different time zone. Let's not forget about doing business overseas, and getting up in the middle of the night to reach the individual at their work place, during their work day. Using the network, the message can be sent at any time, and the individual will have it the next day; the photographer can sleep all night.

Large corporations, such as Nikon and Calument have signed on with Photonet, giving immediate access to the latest tools of the trade. Nikon has established a Professional Services organization within their corporation. Photographers can now log in and get announcements of events, new product listings, itineraries of technicians, and lists of repair stations in the U.S.A.. Calument is a discount supply house offering electronic shopping 24 hours a day, and has an on-line catalogue of equipment from all manufacturers of photographic supplies. In addition, with certain stipulations, they will pay for access time.

For the professional, such as Richard Steedman of the Stock Market Photo Agency, the ability to order equipment, and to get information, newsletters, tips, jobs, and electronic mail, means greater efficiency and dollars saved. Photographers prefer to take pictures; they don't like clerical or administrative work. A computer network gives access to a large part of the administrative work and frees up time for photography.

If your peers are making the transition to telecommunications within your profession, share your experiences with us.

A WORD PROCESSING DATABASE???

Another WPL Series

by Richard Loggins

Now for the evening news. In response to the many requests received from a very vocal segment of its readers, *Apple Orchard* magazine has announced a new monthly column that is expected to be of interest to both novice and experienced individuals.

The column will present information and applications related to word processing, including AppleWriter's popular Word Processing Language.

With that small bit of information, we'll begin creating a complete data base program, written entirely in WPL (Word Processing Language), that you can use from within AppleWriter.

If you are not familiar with WPL or AppleWriter, you're in for a real treat. You're about to begin a journey that will teach you how to make all of your word processing tasks much easier, without purchasing any additional software. Your only investment is the price of *Apple Orchard* (you do subscribe, don't you?) and a little time.

TWO FOR ONE PRICE

WPL offers an interesting side benefit. Since AppleWriter is available for the Apple //e and the Apple ///, our WPL data base will work on both the Apple //e and the Apple ///.

There are only three items you'll have to watch out for: clearing the video screen, disk file names and locations, and printer output.

We will point out each of these as we encounter them, which should make it relatively easy for you to insert the correct options for your particular computer.

THE BIG PICTURE

Let's begin by establishing what we will want our data base to accomplish, as well as the terminology that will be used.

A word processing data base should be capable of storing

individual units of information that relate to a sub-topic. For example, the street address, city, and state are all individual units of information that relate to an address.

We will call each of these units a field of information, or a field for short.

Next, our data base should keep the fields of information associated with the correct sub-topic, and allow a number of sub-topics that are all part of one major topic.

To avoid confusion, we will call each sub-topic a record of information, or just a record.

Our collection of records, or the main topic, will be called a file. So remember, it will take one or more fields to make a record, and one or more records to make up a file.

A word processing data base should also be capable of taking the information that exists in any of the fields of one or more records, and insert it into a specified document at a specified location.

It should allow us to add or delete entire fields to all records, add or delete records to a file, and view or edit selected records that exist in a file.

Another nice feature would be to have the ability to search an entire file for the existence of a specified word or phrase, and if found, display the appropriate record.

WHO'S ON FIRST?

Since we will be distributing this information for possibly three different computers (Apple II, Apple //e, and Apple ///) and the respective versions of AppleWriter, some confusion is possible.

To avoid this, let's establish a few ground rules. These rules will make sure we will all be talking the same language, regardless of the type of computer or version of AppleWriter.

Disk drives are a good place to start. Each computer has one drive that is used to "boot" or start the system when the computer is first turned on.

For Apple II and //e owners, this drive is connected to slot 6, drive one position. Its common designation is "S6,D1" for DOS 3.3.

Apple /// owners use the internal drive - the drive that is an integral part of your computer. Its device designation is ".D1".

Throughout the coming articles, all non-programming references to this drive will be called the "main" drive. Any additional drives you may have will be called "external" drives.

Now that we have agreed what to call each of the drives, we can tackle the problem of file names.

The actual file names are not really the problem, as it is easy to use a file name that will work with both computers. The problem arises when the drive location is included as part of the file name.

To solve this, we will use one format for the file name, and include two options. Thus, if you have an Apple //e you will follow the Apple //e option. If you have an Apple ///, you will follow the Apple /// option.

Consider a file that is named LETTER, which is to be

saved on the main drive. In our program listings, this will appear as:

[.D1/]LETTER[,D1]

There are two sets of brackets, one on either side of the word LETTER. The information that appears in the first set of brackets, to the left of the word LETTER, is the drive designation for Apple /// users.

The information that appears in the second set of brackets, to the right of the word LETTER, is the drive designation for Apple II users.

So if you have an Apple ///, you would enter .D1/LETTER, and ignore the Apple II option. If you have an Apple II you would enter LETTER,D1 and ignore the Apple /// option. Never enter the brackets as part of the file name.

There are a few other minor differences between the machines that will affect our program, but we will deal with these as we encounter them.

To many of you, all of this preliminary stuff may seem like a waste of time. However, the last series of articles brought forth letters that indicated many of our readers are new not only to WPL, but to computers as well.

Since each reader -- expert or novice -- is important, and the purpose of these articles is to enlighten, we will do our best to accommodate each and every one of you.

Now to the subject of help. If you encounter any difficulty with the information we will be presenting, there are a few places you can turn to for assistance.

First and foremost is your local computer club. Local clubs -- good ones -- are a virtual fountain of knowledge.

Other sources are the "Ask Us/Tell Us" and "Ask the Apple Wizard" columns in this magazine, which can draw from a bank of experts to answer almost any question you may have. (*Ed.'s Note: We don't always include these columns, as there are some months when we feel that the "feature articles" deserve all the space we are able to offer.*)

And last, you can contact the author of the program by addressing your inquiries to me in care of: **Apple Orchard, PO Box 6502, Cupertino, CA 95015.**

WPL COMMANDS

WPL commands can originate from any one of three possible sources: A text file residing on a disk, a text file as it is being printed, or directly from the keyboard of your computer.

Commands that originate directly from the keyboard are known as immediate commands, and operate in the immediate mode. This includes the commands you normally use to compose, edit, save, and print your text.

The commands that originate from either a text file as it is printed, or a disk file are known as deferred commands, and operate in the deferred mode.

In either case, deferred or immediate, the commands will provide identical results. They will also require the same parameters if such items are normally required with the command.

This means if you enter a CTRL-N from the keyboard, you must provide the letter Y to erase the text editor. The letter Y is the parameter associated with the command.

From the deferred mode you can also execute a CTRL-N to erase the text editor. You must also supply the letter Y to cause the text editor to be erased. The same command, originating from two different sources, with the same parameter, will produce the same result.

WHAT'S IN A SPACE?

To enter a CTRL-N from the keyboard, you simply hold down the CONTROL key while you press the N. Simple enough, but how do you enter a CTRL-N from the deferred mode? You certainly can't press the keys.

The secret lies in the way AppleWriter interprets a WPL program as it is executing. In all WPL programs, AppleWriter interprets the first character following the first space on each line as a control character.

So if you had a WPL program that consisted of only one line, and the line contained only SPACE NY, it would be interpreted by AppleWriter as CTRL-N, followed by the letter Y.

This would provide the command (CTRL-N), and the parameter (Y). The result: Erase the text editor.

Remember this rule, as the successful operation of any WPL program will depend on it.

Rule 1:

The first character in a line that is not a space, that follows the first space in the line, is treated as a control character.

FLOW OF CONTROL

Every programming language, regardless of its complexity, provides a means to control the sequence of execution of the commands within the program.

One can equate this to a road map. To go from Los Angeles to New York, you can determine which way to go by examining the highways. Each highway is clearly labeled with a number, and no two highways have the same number.

WPL, which is a programming language, also provides a method to control the sequence of execution. However, it doesn't place the restraint of pre-determined labels (or highway numbers).

Instead, it establishes a single rule that will allow AppleWriter to distinguish a label from the commands. This is the second rule you must remember, and is the rule for labels.

Rule 2:

If the first character on a line is not a space, then it and all of the characters following it, up to the first space, is considered to be a label.

Keeping the two rules about labels and control characters in mind, let's examine the following WPL program line and

decipher its meaning. For the sake of argument, the letter 'E' starts at the first position on the line.

ERASE NY

The word ERASE is considered to be a label, since a space has not appeared from the start of the line.

The label is followed by a space -- the first space in the line -- and by the letter N.

The first letter that is not a space, and that follows the first space in the line, is treated as a control character, making the letter 'N' a CTRL-N.

This is immediately followed by the letter 'Y', which is the parameter associated with the CTRL-N command, and will cause the text editor to be erased.

Thus, if our program needed to erase the text editor, we can accomplish this by sending the control of the program to the label ERASE.

CHANGING TIMES

There is only one item needed to complete the essential components for any programming language. The missing item is called a variable.

WPL provides two different types of variables, one for numbers and one for the information that is anything except numbers.

The variable for numbers is called a numeric variable. The variable for anything that is not a number is called a string variable -- originating from the phrase 'string of characters'.

WPL provides three numeric variables, represented by the letters X, Y, and Z. Each of these variables can represent any integer number between zero and 65,535, and allow addition and subtraction. Sorry, multiplication and division isn't available as part of their normal function.

For strings of characters, four different variables are provided. The string variables are represented by \$A, \$B, \$C, and \$D. Each of these can represent a string of characters, providing each string does not contain more than 64 characters.

Variables in a WPL program are like variables in mathematics. If you are not familiar with variables, try to view them as a series of post office boxes.

Three of the boxes are labeled X, Y, and Z. These three boxes can contain only numbers. If you haven't put anything in the box, it will contain a zero.

The remaining four boxes are labeled \$A, \$B, \$C, and \$D. These four boxes can contain any characters (letters or numbers), or no characters. If they do not contain any characters, then they are said to contain a null string.

Once you place any information -- numbers or letters -- into a variable, it will remain there until you change the information. For example, if you place the number five in the numeric variable X, that number will remain in X until you change it.

We can now say that a WPL program consists of commands, labels, and variables. These are the tools provided by AppleWriter. And with any tool, the success or failure of any task depends upon how the tools are used.

PROGRAM FORMAT

With this in mind, we will now put our tools to use. Get your AppleWriter up and running, and get into the text editor.

To make sure you will be able to interpret the program listings about to appear, the following format will be used.

WPL PROGRAM: SAMPLE (PART I)

LABELS will start here.

COMMANDS will start here.

The first line, WPL PROGRAM: SAMPLE (PART I), identifies the program. In this case, the name of the program is SAMPLE. This is the name you must use when the program is saved.

Following the program name, the notation PART I appears in parenthesis. Anytime you see part 1, part 2, etc., enter all of the parts as one complete program, and save it as such.

Never enter any portion of the heading, nor the blank line that follows, as part of your program.

Under the heading, you see the phrase LABELS start here. Any item that appears to the left of the 'P' in 'PROGRAM' will be a LABEL.

As the rule states, a label must start at the first position of the line with no preceding spaces.

The next phrase, COMMANDS start here, is used to indicate where the commands will appear in the program listings.

Any item that begins under the 'P' in 'PROGRAM', or to the right of this point, is a COMMAND.

The rule for commands states that a command is preceded by the first space in the line. So make sure you put a space (only one is necessary) before each command.

MENU STRUCTURE

Our data base will consist of several different WPL programs. This is due to the limitation placed on a WPL program by AppleWriter. A WPL program cannot exceed 2,048 characters in length.

Each WPL program will perform one or more functions for our data base, and will provide a menu for us to select the desired function.

We will want to link all of the programs together to provide the appearance of one single program. This can be accomplished with very little difficulty by providing a master menu.

Our master menu will allow access to the menus of each WPL program, and will be called the "main menu."

THE MAIN MENU

It is now time to start programming, so get your AppleWriter up and enter the first part of the main menu.

WPL PROGRAM: MB (PART I)
START PND
NY
PGO MENU


```

LINE PPR _____
      PRT
SELECT PSR LINE
      PPR
      PIN      Select your option by letter: $A
      PRT

```

Let's stop here for a moment, and examine what we have entered so far.

First, you will notice we have three different labels in the program up to this point: **START**, **LINE**, and **SELECT**.

Each of these labels identifies a portion of the program, and each portion contains one or more WPL commands. These portions are called routines.

Starting with the first routine (named **START**), we'll examine the commands and explain the function of each.

The first command we find is **PND**. This command turns off the text editor display. The text editor display is turned off for two reasons.

First, the text editor display will disrupt the information placed on the video monitor by our WPL program, resulting in a poor appearance and in some cases, mass confusion.

Second, a WPL program will execute approximately five times faster if the text editor display is turned off.

The next command is found in the second line of the same routine: **NY**. And by now, you should be able to recognize this command and the action it causes.

If not, a **CTRL-N** followed by **Y** will erase the text editor, which is exactly what this command will do. If you're having trouble understanding this command, go back and examine the rules.

The last command in this routine relates to the flow of control. The first part reads **PGO**, which is the actual command. When this command is executed, it will alter the sequence of program execution.

In this application, it will cause the program to search for the label **MENU**, and continue program execution with the first command that appears in that routine.

The next routine (**LINE**) provides another new instruction, **PPR**. This command will print the information that immediately follows the command on the video monitor. That's why we turned off the text editor display. (Who wants the text editor data line in a data base menu?)

To make it a bit easier on you, if you have an eighty column monitor (doesn't everyone?), enter seventy-nine (79) of the little dashes. Otherwise, enter one less than your screen width.

The next command, **PRT**, will temporarily leave you in a state of confusion. This command signifies the end of a sub-routine, causing the program to return to the point from which it was called.

We'll explain sub-routines in a moment, so for now just enter the command and have a bit of faith.

Next, we encounter the routine named **SELECT**, which will result in an explanation of sub-routines. Quick moment, huh?

The first command in this routine is **PSR LINE**. The **PSR** command is similar to a **PGO** command, with one major difference. A **PGO** command transfers control of the program permanently, while a **PSR** command only transfers control temporarily.

Here, the **PSR** command means to execute the sub-routine named **LINE**, and when the end of that routine is reached, return immediately to this point and execute the next command that follows. Hence the reason for the **PRT** command in the routine named **LINE**.

If that's a bit foggy, try it this way. When the command **PSR LINE** is encountered, the program will go to the routine named **LINE**.

LINE will cause a bunch of little dashes to be printed on the monitor, and the end of the sub-routine instruction will be encountered.

When the return instruction (**PRT**) is executed, control of the program will go back to the routine named **SELECT**, and execute the command found on the second line. It's sort of like a little side trip.

The next command, **PPR**, has no options or parameters associated with it in this use. The **PPR** command is used to print information on the video display.

Here, it will print one blank line on the monitor, since there isn't any text information following the command.

The third command in the select routine introduces the **PIN** command. This command is used to accept an input from the keyboard, much the same as an input statement is used in a basic program.

When this command is executed, the phrase "Select your option by number:" will be printed on the monitor.

The program will then wait for the user to enter a string of characters and press the **RETURN** key.

Excluding the **RETURN** key, all of the information (up to sixty-four characters) entered by the user will be placed in the string variable **\$A**. Notice there is no space between the equal sign and the dollar sign.

The last command in this routine is the **PRT** command. The routine named **SELECT** is also a subroutine, and the **PRT** command signifies the end of the routine.

Have you wondered why so many sub-routines are used? If you have a function, or routine, that must be performed more than once in a WPL program, a sub-routine will reduce the length of the program. A sub-routine only has to be written once, and can be used by several portions of the main program.

By placing the sub-routines near the front, or top, of the program, AppleWriter will be able to find the routine much faster. This will result in faster execution of your program.

As you have witnessed, a sub-routine can call another sub-routine. This is called nesting. In WPL, sub-routines can be nested up to a maximum of 32 levels, and the program will find its way back to the original starting point.

And this is where we will stop. Next month we will discover how to make use of these sub-routines, determine what the user's selection was, and what to do with it. 🍏

The Visionary 100 Super Modem

Review by Michael Askins

“Ho-hum. Another modem.” Well, the days when all modems were ‘dumb’, dull and boring are past. There are modems on the market now with intelligence rivalling many personal computers. One such example of this new breed of communication device is the Visionary 100 -- an extended function modem allowing the sending and receiving of messages over the phone lines without tying up a host computer. Actually the Visionary comes in two different models; one is 300 baud only, the other runs at either 300 or 1200 baud. The one reviewed here is the 300 baud unit. Both units are brought to us by Visionary Electronics Inc., of San Francisco.

The Visionary 100 has an impressive list of features. It is actually a microcomputer system using an 8085 microprocessor, supported by an 8K control program and 2K (expandable to 24K) of RAM memory. All this hardware integrates a real-time clock/calendar, an auto-answer, auto-dial, 300 baud, Bell 100 compatible modem, and a memory buffer for storing incoming and outgoing messages. The modem hardware allows you to dial using either pulse or tone dialing. On board firmware (8K ROM) allows the user to interact with the modem

using simple commands, and further allows the definition of new commands as sequences of the built-in instructions. An on-board battery backup allows the modem to stay on line for up to 120 hours during power failures. The RS232C host interface allows communication with just about all personal computers and dumb terminals.

The 100 has 7 status LEDs which signal things such as receiver “off hook”, carrier detect and message waiting. Also on the front of the unit is an LCD clock display so that the modem’s user can know the time also. On the back of the unit is the RS232C DIN type connector which connects to the host computer (the cable provided has a DIN on one end, and a DB25 on the other), two female modular phone jacks (RJ11C), and a reset button used to recover from “crash” situations.

The control language includes commands to manipulate the contents of memory, to dial out, and to control the timing of the execution of commands. These “primitive” commands can be strung together to perform more complex operations. The manual refers to these user defined command sequences as “custom commands.” One such command which the manual describes is one which dials up a computer (like a timesharing mainframe, or a network like CompuServe or Dow Jones), waits for a user ID prompt (using the AWAIT command), types your user ID (using the SEND command), waits for a password prompt, and types your password. With this user command, all one needs to do to get on the system is type the single command (which I called “LOGON”), and the system takes care dialing up and logging-on. If you regularly access a number of remote machines, each with their own combination of parity and half/full duplex requirements, you can set these characteristics from the same “logon” command. Special built-ins provide these customized commands with the ability to detect busy or no-answer conditions, and to alter the modem’s behavior accordingly.

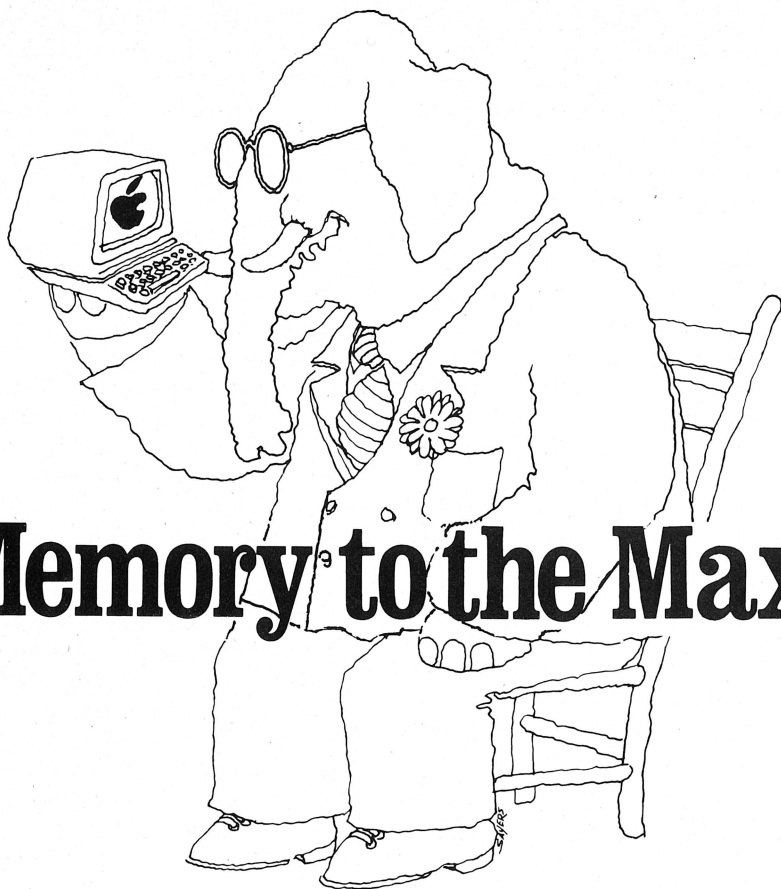
There are a number of complex operations that the Visionary 100 can be programmed to perform with no intervention from a host computer. The unit may be programmed to begin sending a message to several phone numbers at, say, 3:00 a.m. when the

phone rates are reasonable. If any of these numbers are busy, or simply don’t answer, the 100 can be programmed to retry these numbers, say every few minutes until communication is established. The unit can also auto-answer, recording messages along with a time/date “stamp” so that the user may know when a message was received.

The Visionary 100 is a particularly good way to implement a multi-station “bulletin board.” All that each station needs is the modem, a dumb terminal and a phone line. Whenever a user has a message to “post” on the bulletin board, he enters it with the terminal, and then the modem takes care of the details of dialing up all the other stations (repeatedly if there is no answer, or a busy signal) and gives them the message. For distant stations (those which can only be reached by toll call) the modem can be told to wait to send the message until 11:00 p.m. when the phone rates are lowest. Upon receiving the message, each of the modems at the other stations flashes its “message waiting” LED to alert the user that a message has been received.

The 100 does have some shortcomings. The definition of custom commands is awkward and could have been made much more user-friendly. The most glaring deficiency is that you cannot edit the commands once you type them in; if you have made an error in the command definition you either live with the error or retype the entire definition! This is really irritating when trying to define any but the most trivial custom commands. (The “LOGON” command described above is a good example of a non-trivial command taking 4 lines. The retyping involved in getting the AWAIT strings for the user I.D. and password exactly right was maddening.) What’s more, you must be careful when retyping the definition, that the original errant definition is first removed using the “erase” command; otherwise, you will end up having two definitions with the same name. This is confusing, to put it mildly. Also, the structure of custom definitions is somewhat difficult to decipher upon listing, especially when strings have carriage returns imbedded in them.

One little piece of hardware that the 100 needs is a speaker. Many modems

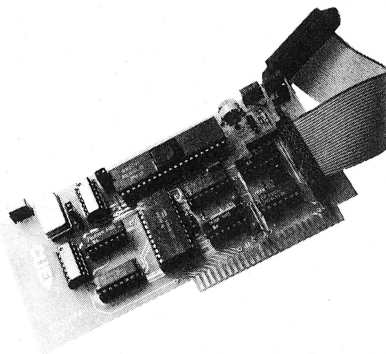


Memory to the Max

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The DiscMaster II is completely contained on a single Apple II compatible I/O board which can be installed in any one of six of the eight peripheral slots in the computer. The

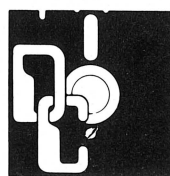
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8" DSDD	1024K

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allow the user to hear the activity on the phone line prior to establishing the data link. When using a phone line for which I pay the bill, I like to be aware of what's happening on the line, particularly if something is going wrong (like when an old woman with a Rumanian accent answers the phone). True, you wouldn't want this speaker on if dialing is taking place while you aren't there (like at 3:00a.m.), so you might also want a switch which defeats it.

I am also a little perplexed by the speed limitation imposed on the host-modem data link. The 100 talks to the phone line at 300 baud, and talks to the host at either 300 or 1200 baud. Why limit the host side to 1200 baud? Most computer serial links and dumb terminals handle high-speed data transmission (9600 baud at least), and transferring a text file of any length from the host to the Visionary is slow. It is the limitation imposed by the phone lines which limits the modem-phone link to 1200 baud; no such limitation exists on the host-modem link making this restriction seem rather arbitrary.

The Visionary 100 has a number of unique capabilities which make it a desirable solution for some intercomputer communication scenarios. In deciding to use this modem, however, you should be certain that this particular disposition of intelligence is appropriate in your application. Using a "super-modem" like the Visionary 100 seems to make sense in the case that the host is a fairly unintelligent device -- a dumb terminal or limited (cheap) personal computer. If the host is other than this, you should realize that a host with sufficient memory and on-board clock/calendar, hooked to a cheaper "dumb-modem" requires only the necessary software to perform all the functions that the "super-modem" performs. On the other hand, if the host is to be used for other, non-communication tasks during times when messages are likely to come in, the Visionary could receive them while the host was busy, and store them for reading at a more convenient time.

The Visionary 100 is available from:

Visionary Electronics Inc.
141 Parker Ave
San Francisco, CA 94118



DUMP DEBUG

or *A Peek At The Heap*

(A closer look at Apple Pascal)
by John B. Matthews, M.D.

Apple Pascal v1.1 does not implement a resident debugger. When the P-machine encounters an execution error, the system indicates in which segment and procedure the error occurred. These numbers reference a compiler generated listing obtained by invoking the compiler's `{<filename>}` option (see the *Apple Pascal Language Reference Manual*, pp.64-66). While this method is somewhat tedious, it does pin-point the cause of an execution error.

When a program compiles correctly and generates no execution errors yet still produces garbage, a plain old dump of memory may be the only remedy. This is especially true when building arbitrary data structures on the system's heap.

The program in Listing 1 gives us a convenient view of memory. It accepts as input a string of hex characters representing a memory page number 0..FF and produces a neatly formatted summary of that page as hex and ASCII (Listing 2). The main program asks whether the output should be directed to Console, Printer or a Disk-file and rewrites the appropriate file of text. After prompting for the page number in hex, the function HVAL is called to convert the input string into a number in the range 0..255. There are 256 pages in the Apple's memory, numbered 0 through 255, each containing 256 bytes of data for a total of 65536 memory locations.

Finally, the procedure SHOW-PAGE is invoked to actually display

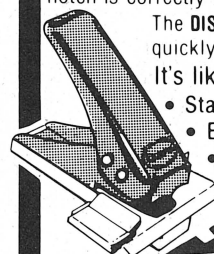
the requested memory page. Notice the declaration of the variable M. Despite its length, precisely one word is allocated for M. We have merely given M four names each corresponding to a different way of looking at what M represents. When we refer to M.I, we ask that M be treated as an integer; if we use the designation M.C, M is interpreted as a pointer to a data structure of the type CHARS. CHARS was previously defined as a packed array of 16 characters numbered 0 through 15.

When DUMP is run by itself, the contents of memory reflect what happens in executing the program. In listing 2, the top of the heap is \$972. Above this we see the directory of a volume named APPLE1 which the system read in order to find the program itself. As an exercise, try allocating several dynamic variables with calls to the intrinsic procedure NEW, then examine them to see how the system uses the heap. To ascertain where the heap starts for your system, use a sequence such as MARK(HEAP); WRITELN(ORD(HEAP)) where HEAP is of type INTEGER.

As an alternative, the program DUMP may be incorporated directly into your own program as a procedure which can be called periodically to examine the current state of memory. It's hardly a co-resident dynamic debugger with breakpoints and dual overhead cams, but it may just help the endless process of bug squashing.

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Listing 1

```

-----
{$R-}{$V-}
PROGRAM DUMP; {by John B. Matthews, M.D. 4/6/82}
TYPE  WORD  = PACKED ARRAY[0..15] OF 0..255;
      BYTES  = PACKED ARRAY[0..15] OF 0..255;
      CHARS  = PACKED ARRAY[0..15] OF CHAR;
VAR    HEX: CHARS; PAG: INTEGER; S: STRING;
      T: TEXT; CH: CHAR;

FUNCTION HVAL(S:STRING):INTEGER;
  VAR I,V: INTEGER; CH: CHAR;
  BEGIN  HVAL:=0; V:=0; I:=1;
    WHILE I <= LENGTH(S) DO
      BEGIN CH:=S[I]; I:=SUCC(I);
        IF CH IN ['0'..'9']
          THEN V:=V*16+ORD(CH)-48
        ELSE IF CH IN ['A'..'F']
          THEN V:=V*16+ORD(CH)-55
        END;
      HVAL:=(HVAL*16+V) MOD 256 {Ensure in range 0..255}
    END; {HVAL}

PROCEDURE SHOWPAGE(PAG:INTEGER);
  VAR M: RECORD CASE INTEGER OF
    1: (A: WORD);    2: (B: ^BYTES);
    3: (C: ^CHARS);  4: (I: INTEGER) END;
  COL: INTEGER; CH: CHAR;
  BYT: PACKED ARRAY[0..15] OF CHAR;

  PROCEDURE DECAHEX(I:INTEGER); {I in 0..255}
  BEGIN BYT[I]:=HEX[I DIV 16];
    BYT[I+1]:=HEX[I MOD 16] END;

  BEGIN M.A[0]:=0; M.A[1]:=PAG;
    REPEAT DECAHEX(M.A[1]); WRITE(T,BYT,4);
      DECAHEX(M.A[0]); WRITE(T,BYT,1);
    FOR COL:=0 TO 15 DO
      BEGIN DECAHEX(M.B[COL]); WRITE(T,BYT,3) END;
      WRITE(T,' ');
    FOR COL:=0 TO 15 DO BEGIN CH:=M.C[COL];
      IF CH IN [' ','~'] THEN WRITE(T,CH)
      ELSE WRITE(T,' ') END;
      M.I:=M.I+16; WRITELN(T);
    UNTIL M.A[0]=0; WRITELN(T)
  END; {SHOWPAGE}

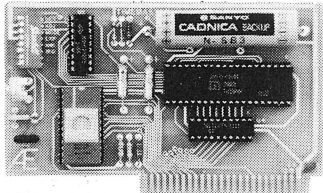
BEGIN {DUMP}
  PAGE(OUTPUT); HEX:='0123456789ABCDEF';
  WRITE(' Dump to C(onsole, P(rinter, D(iskfile ');
  READ(CH);

```


Apple Peripherals Are All We Make

That's Why We're So Good At It!

THE NEW TIMEMASTER II



Automatically date stamps files with PRO-DOS

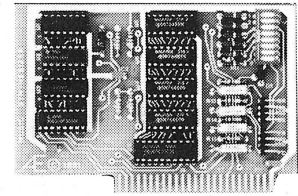
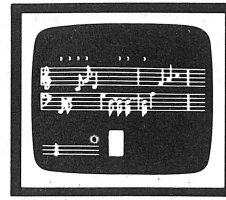
NEW 1984 DESIGN
An official PRO-DOS Clock

- Just plug it in and your programs can read the year, month, date, day, and time to 1 millisecond! The only clock with both year and ms.
- NiCad battery keeps the TIMEMASTER II running for over ten years.
- Full emulation of ALL other clocks. Yes, we emulate Brand A, Brand T, Brand P, Brand C, Brand S and Brand M too. It's easy for the TIMEMASTER to emulate other clocks, we just drop off features. That's why we can emulate others, but others CAN'T emulate us.
- The TIMEMASTER II will automatically emulate the correct clock card for the software you're using. You can also give the TIMEMASTER II a simple command to tell it which clock to emulate (but you'll like the Timemaster mode better). This is great for writing programs for those poor unfortunates that bought some other clock card.
- Basic, Machine Code, CP/M and Pascal software on 2 disks!
- Eight software controlled interrupts so you can execute two programs at the same time (many examples are included).
- On-board timer lets you time any interval up to 48 days long down to the nearest millisecond.

The TIMEMASTER II includes 2 disks with some really fantastic time oriented programs (over 40) including appointment book so you'll never forget to do anything again. Enter your appointments up to a year in advance then forget them. Plus DOS dater so it will automatically add the date when disk files are created or modified. The disk is over a \$200.00 value alone—we give the software others sell. All software packages for business, data base management and communications are made to read the TIMEMASTER II. If you want the most powerful and the easiest to use clock for your Apple, you want a TIMEMASTER II.

PRICE \$129.00

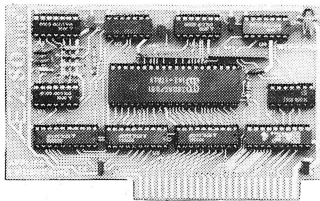
Super Music Synthesizer Improved Hardware and Software



- Complete 16 voice music synthesizer on one card. Just plug it into your Apple, connect the audio cable (supplied) to your stereo, boot the disk supplied and you are ready to input and play songs.
- It's easy to program music with our compose software. You will start right away at inputting your favorite songs. The Hi-Res screen shows what you have entered in standard sheet music format.
- Now with new improved software for the easiest and the fastest music input system available anywhere.
- We give you lots of software. In addition to Compose and Play programs, 2 disks are filled with over 30 songs ready to play.
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- Full control of attack, volume, decay, sustain and release.
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- Our card will play notes from 30HZ to beyond human hearing.
- Automatic shutoff on power-up or if reset is pushed.
- Many many more features.

PRICE \$159.00

Z-80 PLUS!



- TOTALLY compatible with ALL CP/M software.
- The only Z-80 card with a special 2K "CP/M detector" chip.
- Fully compatible with microsoft disks (no pre-boot required).
- Specifically designed for high speed operation in the Apple IIe (runs just as fast in the II+ and Franklin).
- Runs WORD STAR, dBASE II, COBOL-80, FORTRAN-80, PEACHTREE and ALL other CP/M software with no pre-boot.
- A semi-custom I.C. and a low parts count allows the Z-80 Plus to fly thru CP/M programs at a very low power level. (We use the Z-80A at fast 4MHZ.)
- Does EVERYTHING the other Z-80 boards do, plus Z-80 interrupts.

Don't confuse the Z-80 Plus with crude copies of the microsoft card. The Z-80 Plus employs a much more sophisticated and reliable design. With the Z-80 Plus you can access the largest body of software in existence. Two computers in one and the advantages of both, all at an unbelievably low price.

PRICE \$139.00

Viewmaster 80

There used to be about a dozen 80 column cards for the Apple, now there's only ONE.

- TOTALLY Videx Compatible.
- 80 characters by 24 lines, with a sharp 7x9 dot matrix.
- On-board 40/80 soft video switch with manual 40 column override
- Fully compatible with ALL Apple languages and software—there are NO exceptions.
- Low power consumption through the use of CMOS devices.
- All connections are made with standard video connectors.
- Both upper and lower case characters are standard.
- All new design (using a new Microprocessor based C.R.T. controller) for a beautiful razor sharp display.
- The VIEWMASTER incorporates all the features of all other 80 column cards, plus many new improvements.

	PRICE	BUILT IN SOFTWARE	SHIFT KEY SUPPORT	LOW POWER DESIGN	80 COLUMN HOME	7x9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERRIDE	INVERSE CHARACTERS
VIEWMASTER	179	YES	YES	YES	YES	YES	YES	YES	YES
SUPRTERM	MORE	NO	YES	NO	NO	NO	NO	YES	YES
WIZARD80	MORE	NO	NO	NO	NO	YES	NO	YES	YES
VISION80	MORE	YES	YES	NO	NO	YES	NO	NO	NO
OMNIVISION	MORE	NO	YES	NO	NO	NO	NO	YES	YES
VIEWMAX80	MORE	YES	YES	NO	NO	YES	NO	NO	YES
SMARTERM	MORE	YES	YES	NO	NO	NO	YES	YES	NO
VIDEOTERM	MORE	NO	NO	YES	NO	YES	YES	NO	YES

The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, WordStar, Format II, Easywriter, Apple Writer II, VisiCalc, and all others. The VIEWMASTER 80 is THE MOST compatible 80 column card you can buy at ANY price!

PRICE \$179.00

- Expands your Apple IIe to 192K memory.
- Provides an 80 column text display.
- Compatible with all Apple IIe 80 column and extended 80 column card software (same physical size as Apple's 64K card).
- Can be used as a solid state disk drive to make your programs run up to 20 times FASTER (the 64K configuration will act as half a drive).
- Permits your IIe to use the new double high resolution graphics.
- Automatically expands Visicalc to 95 K storage in 80 columns! The 64K config. is all that's needed, 128K can take you even higher.
- PRO-DOS will use the MemoryMaster IIe as a high speed disk drive.

MemoryMaster IIe 128K RAM Card

- Precision software disk emulation for Basic, Pascal and CP/M is available at a very low cost. NOT copy protected.

- Documentation included, we show you how to use all 192K.

If you already have Apple's 64K card, just order the MEMORYMASTER IIe with 64K and use the 64K from your old board to give you a full 128K. (The board is fully socketed so you simply plug in more chips.)

MemoryMaster IIe with 128K	\$249
Upgradeable MemoryMaster IIe with 64K	\$169
Non-Upgradeable MemoryMaster IIe with 64K	\$149

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```

CASE CH OF 'P','p': REWRITE(T,'PRINTER:');
               'D','d': REWRITE(T,'DUMP.TEXT') END;
IF NOT(CH IN ['P','p','D','d'])
  THEN REWRITE(T,'CONSOLE:');
WRITELN;
REPEAT
  WRITE('  Dump: enter page number (00..FF)');
  WRITE('; <cr> exits: '); READLN(S);
  IF LENGTH(S)>0
    THEN BEGIN PAG:=HVAL(S); SHOWPAGE(PAG) END
  UNTIL LENGTH(S)=0; CLOSE(T,LOCK)
END. {PROGRAM}

```

Listing 2

```

-----
0900: 00 00 00 00 00 00 01 00 04 00 06 41 50 50 4C 45 .....APPLE
0910: 31 A0 06 00 00 00 00 00 00 00 00 E5 00 EB 00 03 00 1.....
0920: 0F 53 59 53 54 45 4D 2E 57 52 4B 2E 54 45 58 54 .SYSTEM.WRK.TEXT
0930: 00 02 B4 A5 00 00 00 00 01 00 01 00 00 00 00 00 .....
0940: 00 00 01 00 04 00 06 41 50 50 4C 45 31 A0 03 00 .....APPLE1...
0950: 00 00 00 00 00 00 CD 00 D0 00 02 00 0F 53 59 53 .....SYS
0960: 54 45 4D 2E 57 52 4B 2E 43 4F 44 45 00 02 B4 A5 TEM.WRK.CODE....
0970: 00 00 00 00 06 00 00 00 06 41 50 50 4C 45 31 00 .....APPLE1..
0980: 18 01 0B 00 00 00 B4 A5 00 00 00 00 06 00 26 00 .....&..
0990: 05 00 0C 53 59 53 54 45 4D 2E 41 50 50 4C 45 00 ...SYSTEM.APPLE.
09A0: 76 67 00 02 BC A2 26 00 4F 00 02 00 0D 53 59 53 vg....&.O....SYS
09B0: 54 45 4D 2E 50 41 53 43 41 4C 76 67 00 02 69 A1 TEM.PASCALvg...i.
09C0: 4F 00 50 00 05 00 0F 53 59 53 54 45 4D 2E 4D 49 O.P....SYSTEM.MI
09D0: 53 43 49 4E 46 4F C0 00 88 A2 50 00 7F 00 02 00 SCINFO....P.....
09E0: 0D 53 59 53 54 45 4D 2E 45 44 49 54 4F 52 76 67 .SYSTEM.EDITORvg
09F0: 00 02 89 A1 7F 00 9B 00 02 00 0C 53 59 53 54 45 .....SYSTE

0A00: 4D 2E 46 49 4C 45 52 00 76 67 00 02 29 A1 9B 00 M.FILER.vg...)...
0A10: A9 00 05 00 0D 53 59 53 54 45 4D 2E 53 59 4E 54 .....SYSTEM.SYNT
0A20: 41 58 76 67 00 02 18 A0 A9 00 AB 00 02 00 0E 53 AXvg.....S
0A30: 59 53 54 45 4D 2E 53 54 41 52 54 55 50 67 00 02 YSTEM.STARTUPg..
0A40: 8B A2 AB 00 CD 00 05 00 0E 53 59 53 54 45 4D 2E .....SYSTEM.
0A50: 4C 49 42 52 41 52 59 67 00 02 39 A1 CD 00 D0 00 LIBRARYg...9.....
0A60: 02 00 0F 53 59 53 54 45 4D 2E 57 52 4B 2E 43 4F ...SYSTEM.WRK.CO
0A70: 44 45 00 02 B4 A5 E5 00 EB 00 03 00 0F 53 59 53 DE.....SYS
0A80: 54 45 4D 2E 57 52 4B 2E 54 45 58 54 00 02 B4 A5 TEM.WRK.TEXT....
0A90: EB 00 17 01 03 A6 09 44 55 4D 50 2E 54 45 58 54 .....DUMP.TEXT
0AA0: 72 09 00 00 64 9A 00 02 00 C8 FE 00 18 01 03 A6 r...d.....
0AB0: 00 53 59 53 54 45 4D 2E 57 52 4B 2E 54 45 58 54 .SYSTEM.WRK.TEXT
0AC0: 00 02 00 C8 F9 00 17 01 03 A6 00 53 59 53 54 45 .....SYSTE
0AD0: 4D 2E 57 52 4B 2E 54 45 58 54 00 02 00 C8 00 00 M.WRK.TEXT.....
0AE0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....
0AF0: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 .....

```


BOOKS

(and assorted
bi-monthly opinions)

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**“Extremism in the
defence of liberty is
no vice.”**

-Senator Barry Goldwater

This article is about two books on Apple's Macintosh computer. Here's a warning: I'm a Macintosh fanatic. I first saw Macintosh (or at least what was to become the Macintosh) in August of 1982. I went nuts. My life has been consumed with the Macintosh and Mac-related issues ever since. Thus I have strong and severely biased feelings toward the machine. I like it more than pepperoni pizza. I believe that nothing but the best in software, peripherals, and of course books is good enough for the Mac. Temper the comments in this review with that knowledge.

Of the books about Apple's revolutionary Macintosh computer already starting to crowd the shelves, two clearly stand out for honest attempts at quality: Doug Clapp's *Macintosh! Complete* (Softalk Books, \$19.95) and Cary Lu's *The Apple Macintosh Book* (Microsoft Press, \$18.95). Both give you information about the Mac not yet available anywhere else, and both are certainly worth reading. Most astounding given the abominable general lack of quality in computer books, both are eminently readable. Yet they are sufficiently different to protect you from having to

flip a coin to decide which to buy.

Doug Clapp's *Macintosh! Complete* is a fine introduction to the outrageous Macintosh computer. The book is enthusiastic, witty, filled with graphics, enthusiastic, comprehensive, enthusiastic, remarkably accurate given its speed of publication (it was on most shelves before the Mac itself), and enthusiastic. It does a superlative job of capturing the spirit of the machine. It also bears unmistakable signs of having been rushed into print; this book might have met an editor, but the meeting was fleeting -- they certainly didn't discuss much. Nevertheless, if you haven't bought a Mac yet and want to find out what the machine is about, this is the book for you.

Cary Lu's *The Apple Macintosh Book* is an equally excellent piece. It is well-organized, attractive, filled with information, possesses a terrific index, and makes a great companion for the Macintosh Owner's Guide. It is also absolutely humorless and shamelessly promotes other products sold by its publisher's parent company. In spite of that, if you already own a Mac you really ought to buy this book.

Detail 1: Clapp

Clapp writes like a man who knows what he's talking about. It turns out he does. He was there. For weeks,

Clapp stalked the halls of Bandle 3, the Apple building where the Macintosh computer went through its final evolution and development. He talked to anybody who would talk to him. It turned out, a lot of people talked to him. He's a very personable guy. Slightly sexist, but still personable. He knows how to listen. And people in the Macintosh division at Apple like to talk about the Mac. They are incredibly turned on by the machine, and their enthusiasm is contagious. That's pretty understandable, given the machine. Go play with one; then come back and read the rest of this article.

Applause

Clapp's style in this book reflects the wit and liveliness (although not the mild cynicism, unfortunately) that readers of his **Clapp-Trapp** column in *Infoworld* look forward to every week. If you can get past his extreme Oh-Boyism, the enthusiasm of his writing is, after all, both entertaining and infectious.

The book is remarkably accurate for a piece that was finished weeks before the software was complete. Clapp missed some of the last minute changes -- and I'm talking last minute! The Finder, Mac's equivalent to an operating system, was still being modified and tested 10 days before release; it's no surprise that some of Clapp's photographs show the **Alternate Disk** icon, a concept that got trashed very late in the game. For all that, it's far more accurate and complete than many computer "classics" that came out many months after their subject machines did (Lon Poole's *Apple II User's Guide* leaps to mind).

Clapp's Traps

The book is not without its faults, most notably crummy editing. In early February Softalk Books announced the book in the special Computer Books & Software issue of *Publisher's Weekly* magazine. Their ad said that this was "no quicky rip-off." Well, half right. It's no rip-off, but it was a quickie. This book went from manuscript to shelf in record time, and in some ways it shows it.

Clapp deserves better. There's stuff wrong with this piece that an editor should have caught. Many terms are used before they're defined; but when they are defined they're defined extremely well. It's almost as if the

book were reorganized at some point during a rewrite (you know -- section A moved after section C, section G moved to the place held by section A -- general second or third draft stuff), but the definitions didn't get properly redistributed. A simple editing task that didn't get done. There are lots of typos and apostrophes where they don't belong, and other stuff that indicate Softalk's editors do better on magazine article rewrites than they do on books.

Detail 2: Lu

Cary Lu's work is as professional as Clapp's is enthusiastic. His writing is clear and precise. His information is accurate. He writes like a man used to dealing with technical issues -- which makes sense, given that he's microcomputer editor for *High Technology* magazine. The back of his book says that he "observed the development of the Mac firsthand." Maybe he

did; I never met him or even saw him around, and I've been working on the Mac project at Apple for the last 18 months or so. Of course, I was in the bathroom a lot.

Praise

This man spent some time on his manuscript. The writing possesses a clarity and completeness I envy. His graphics are appropriate and detailed; look at his figures and you **know** what he's talking about. Here comes my highest praise: I wish he were in the business of writing documentation for computer products full-time.

Foley

My major complaints about Lu have to do with his lack of humor and the painfully obvious hyping he does of Microsoft products. First, his humor: he doesn't show any. The Macintosh is indeed a powerful tool, but it is also fun. Lu doesn't convey any of the excitement or laughter of the Mac, nor any of the joy you catch when you talk with a Mac owner. I get frustrated reading Lu; doesn't he realize that this machine can set people's spirits free? I mean, hasn't he **played** with the machine, for Pete's sake?

On the hyping. There are literally dozen -- scores -- legions of software developers working on Software for the Mac. Yet Lu spends lots of ink on Microsoft products, and little on products expected from other sources. He gives lots of space to Microsoft **BASIC** (the old standard, ported to the Mac and Mousefied), **Word** (word processing), **Multiplan** (a super spreadsheet), and **Chart** (business presentation graphics). Of the four, Multiplan was the only product remotely ready for people when the Mac was. **BASIC** came out quickly, but was filled with bugs. I'm writing this article three full months after Release, and I still haven't seen **Word**! He does mention other products in passing, but his emphasis on non-ready Microsoft products is -- well -- embarrassing.

Recommendations

If you haven't got your Mac yet, buy Clapp. If you've already got your machine, buy Lu. I bought 'em both -- but then, I'm a fanatic. 🍏

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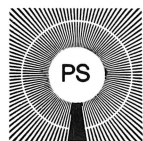
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Edited by Gene Wilson

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NEW PRODUCTS EDITOR
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Contents

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HARDWARE
Disk Storage/Backup
Interface Cards
Peripherals
Modems/Networks
Work-Alike Systems
Printers/Plotters
Surge Protection
Maccessories
Miscellaneous

SOFTWARE

Business (General)
Construction
Real Estate
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Communications
Education(al)
Games/Simulations
Graphics
Languages (Programming)
Languages (Languages)
Personal
Utilities
Word/Idea Processing
Miscellaneous

NEW FROM APPLE

The **Apple Communications Protocol Card**, allows Apple II personal computers to act as remote terminals or workstations in IBM networks, and can communicate with many mainframes, including IBM 360, 370, 4300 and 303X computers. \$700.00. (Card requires one of the software packages described below:)

- The **IBM 2780/3780 Emulator batch protocol software** allows the card to transfer any Apple II file or program to any mainframe supporting the protocol. Up to nine files can be sent in a single transmission. \$300.00.
- The **IBM 3270 Emulator interactive display system protocol** allows Apple II personal computers to connect to any IBM mainframe in the System/370 series, and act as an interactive display terminal. The Apple II system becomes functionally equivalent to an IBM 3271 or 3274 controller with a single attached 3278 video display unit. Since the card provides 3274 controller functions, an Apple II can connect directly to a mainframe via a modem without any additional hardware. \$300.00.

A product similar to the Apple Communications Protocol Card also is available for the Apple III and Apple III Plus computers from Elcom Systems Peripherals (ESP) of Corona, Calif. Further information is available through Apple's national account executives and selected authorized Apple Dealers.

The **Apple Logo Classroom Kit**, for all Apple Two computers (with 64K RAM), allows schools to equip 10 Apple II personal computers with Apple Logo. The kit provides:

- one standard Apple Logo package with master and back-up disks, an introductory manual and tutorial manual.
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Further information is available from authorized Apple dealers and educational account representatives in Apple's regional sales offices.

HARDWARE

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Circle HelpCard No. 103

Caribbean Computer Sales, Inc.
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Dateminder, for the Apple II computer, comes on two diskettes, and includes a clock/calendar board. The program is targeted to medical, dental, legal and other practitioners. It allows the user to file, instantly recall, search

or print scheduled events and memo items by date and time of day. Events are displayed ten minutes in advance, and an audible alert sounds. \$275.00.

Circle HelpCard No. 104

North American Computer Systems
Skybird Software
11 North Skokie Highway
Lake Bluff, IL 60044
(312) 940-1200

Peripherals

The **Bearcat CP 2100 scanner**, can be controlled by an Apple II or //e computer. Up to 200 channels can be programmed to display the source and location of a transmission, 10-codes, phone numbers, etc. The information appears on the screen whenever a broadcast is monitored. Features include: multiple priority levels, a search/store/count mode for finding all active frequencies, and the ability to activate recorders or other optional equipment. Basic package includes the radio, AC adapter, whip antenna, 20 foot coaxial cable and mating BNC connectors. Program diskette, manual and interface cable to computer are in a second package. \$499.95

Circle HelpCard No. 105

Electra Company
300 East County Line Road
Cumberland, IN 46229

Modems/Networks

EDUCATOR ALERT!!! Network 816, for Apple Two computers (and Apple compatibles), supports up to 16 computers (serviced by one or two disk drives), and runs ALL programs protected or interactive, without any change to software or hardware.

Programs load into all 16 computers (or a selected set) in one to three minutes, at 200,000 baud. The Network 816 costs \$1,995.00.

Each computer in the system requires an interface card which is connected to the Network 816 by ribbon cable, at \$89.95 per unit.

The Monitor 16 enables the instructor to see the display of each station's monitor. When used with color monitors, audible communication is added. \$595.00.

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The BD][+ serial interface is an Apple * compatible plug-in that is ideal for use with LETTER QUALITY PRINTERS, Modems, Teletypes (Current Loop supported) and more. It supports ETX-ACK or 'ready-line' handshakes. Included is a comprehensive users manual and a 180 day warranty. BEST of all, only \$39.95/KIT, \$59.95/ASSM. (Add \$2.00 S&H).

For MODEM users we offer a FULL DUPLEX terminal routine that has DATA CAPTURE, on-line printing, file UPLOADING, and //e 80 column operation. These features and more supplied on unprotected disk at the unheard of price of \$25.00.

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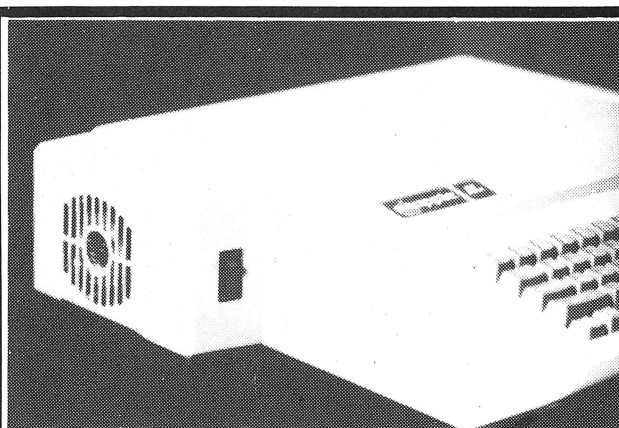
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B & D ELECTRONICS

P.O. Box 3651
Lawrence, Ks. 66044
(913) 841-4182

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Circle HelpCard No.032
DEALERS INVITED



COOLING FAN FOR APPLE COMPUTERS

- Easy installation: Just clips on to the side of the Apple
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- Provides line surge protection.
- Filters noise and R.F. interference.
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- Compatible with the Apple stand.

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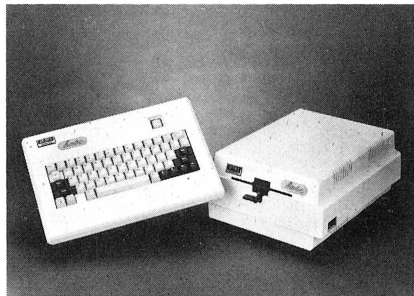
P.O. Box 26
Loma Linda, Calif. 92354-0026

Apple is the registered trade mark of Apple Computer Co.

Work-Alike Systems

The **HAVAC** (Home/Academic Very Affordable Computer) is a transportable, portable, computer that is fully compatible with programs for the Apple Two family of computers. Suggested retail is \$850.00, which includes 64K RAM, 8K ROM, 164K floppy disk drive, 62 key detached keyboard supporting upper and lower case and 4 cursor keys, HiRES color graphics, printer port, serial port, game port, and video hookup. Free software includes HAVAC DOS, Typewriter, Card File, Calculator, Utilities, HAVACOM and HAVAC BASIC.

Circle HelpCard No. 107
Micro-Sci
2158 South Hathaway Street
Santa Ana, CA 92705
(714) 241-5600



Printers/Plotters

Centronics has introduced its new "**Horizon**" Series of dot matrix printers:

- **Model H80**, has an 8 inch, type writer style, printed line, 160 cps draft rate, and 27 cps letter printing capabilities. It also features overstrike, condensed, pica, elite and expanded print modes, plus true superscript/subscript printing.

Circle HelpCard No. 108
Centronics Data Computer Corp.

- **Model H136**, has the H80's features, plus a wide carriage 15.6 inch print line capable of printing 156 characters at 10 characters per inch. In condensed print mode it can produce 266 characters per line.

Circle HelpCard No. 109
Centronics Data Computer Corp.
1 Wall Street
Hudson, NH 03051
(603) 883-0111

Amdek has announced three new 132 character print width, daisy wheel printers, each with ribbon cassette cartridge, parallel interface cable, paper guide,

and full documentation:

- **5025 Printer**, transportable, 25 cps, \$799.00.

Circle HelpCard No. 110

- **5040 Printer**, desktop, 40 cps, \$1675.00.

Circle HelpCard No. 111

- **5055 Printer**, desktop, 55 cps, \$1990.00.

Circle HelpCard No. 112

Amdek Corporation
Printer Products
2201 Lively Blvd.
Elk Grove, IL 60007
(312) 364-1180

Surge Protection

The **Tycor AC Power Line Filter** cleans electrical current instantaneously and protects computers and other sensitive electronic equipment 100% from "spikes" and other transients. For further information, contact Jerry Halprin/Denia Mc Afee, at (213) 859-1691.

Circle HelpCard No. 113
Acemir Communications
9701 Wilshire Blvd., Suite 800
Beverly Hills, CA 90212

Accessories

Kensington Microware is introducing a full line of accessories for the Macintosh. They include:

- **Swivel**, to turn Mac around.
- **Surge Suppressor**, anti-spike protection.
- **Disk Case**, storage for 35 diskettes
- **Printer Buffer**.
- **300 baud modem**, built for travel.
- **Disk Pocket**, for traveling with diskettes.
- **Cleaning Kit**.

Circle HelpCard No. 114

Kensington Microware
251 Park Avenue South
New York, NY 10010
(212) 475-5200

Miscellaneous

Calc/Pad is a 20 row by 8 column form, with 50 8 1/2 x 11 inch sheets per pad.

BANNER-RAMA™

The FASTEST, EASIEST Banner maker available.

Prints Neat banners for parties, games, special occasions, or signs for bulletin boards, garage sales, store sales. It has **1001 uses**. Prints 6" or 3 1/2" letters with four format options. Fun and easy to use. Menu driven and unlocked. Runs on Apple II+, //e, ///, IBMpc, Commodore 64. Cost \$29.00

D-LABELS+™

Tired of typing catalog to see what files are where? Use **D-LABELS+** to print **sorted** and **formatted CATALOG** labels. Uses printer enhancements for professional looking labels. Special option allows printing of Mailing and Shipping labels. Comes with manual and supply of labels. Fast and easy to use. Runs on Apple II+, //e. Cost \$39.00

Specify type computer when ordering, add \$3.00 shipping, CA residents add 6% tax.



FlowerSoft

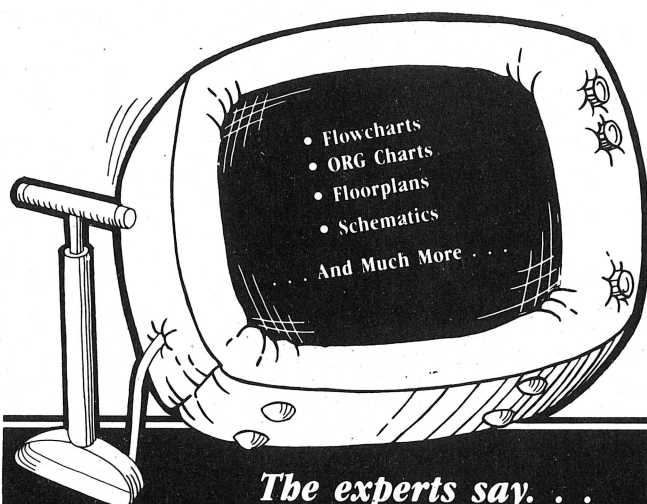
564 TARA (209) 239-2116
MANTECA, CA 95336

Apple II+, //e, ///, IBMpc; Commodore 64; are trademarks of Apple Computer Inc., IBM Corp., and Commodore Computers respectively.

Circle HelpCard No.022

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The experts say. . .

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If your taste in graphics runs to the practical, CHARTS UNLIMITED is for you.

SPECIAL FEATURES. . .

- Ten times more graphics area for drawing charts
- Fast graphics: programmed in assembler language
- Text editing functions: insert, delete, upper & lower case, bold face letters
- Online help screens
- Set of 36 objects and symbols: flowcharting objects, brackets, math symbols, arrows, more.

System Requirements: 64K Apple II/Ie, DOS 3.3,
One Disk Drive, Most Dot
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Price: \$198.50 (Postpaid): Ohio
residents add 5.5%.

To Order: Contact your nearest
dealer, order by mail, VISA,
MasterCard accepted.



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(513) 424-6733

Advertisers' Index

Page	Advertiser	Help #
69	Apple Country	002
15	Applied Engineering	
53	Applied Engineering	
57	Argonaut Distributors	031
58	B & D Electronics	032
1	Central Point	003
51	Connecticut Information	033
60	Creative Designs	015
70	Custom Computer	034
50	Datacue	020
Cover 3	Data Technology	006
Cover 2	Dennison	005
43	Douglas Electronics	007
24	Expanding Space	027
42	Fiberbilt	028
59	Flowersoft	022
42	Interactive Microware	029
34,37	International Apple Core	001
7	International Apple Core	001
67	Johnson Products	008
66	Manx Software	023
63	Midwest Microsystems	024
33	Nibble	016
5	Nibble	009
65	Peelings	010
56	Proforma	017
13	Pro-Pac	030
Cover 4	Quentin	011
51	Quorum	036
40	Robert Jacobs	037
58	Shellner	046
4	Softinson Data Corp.	
64	Softkey	025
11	Turning Point	014
68	Videx	026

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Apple Orchard
provides these
inquiry cards
to help you
get answers!

SEND IT IN ►

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Name _____ Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Please check one box in each category:

1. This copy of Apple Orchard came to me through
☐ User Group
☐ Computer Store
☐ News Stand
☐ Borrowed
☐ Subscription
☐ Book Store
☐ School
2. I personally use most:
☐ Apple II/II Plus
☐ Apple ///
☐ Apple Workalike
☐ Apple //e
☐ Lisa
☐ IBM PC or workalike
☐ Don't own yet
☐ Other
3. I have owned a microcomputer since
☐ before 1977 ☐ 1977
☐ 1978 ☐ 1979
☐ 1980 ☐ 1981
☐ 1982 ☐ 1983
☐ not yet
4. I use my computer primarily for
☐ Home
☐ My Business
☐ Hobby
☐ Education
☐ Other
5. I use my computer primarily with
☐ Word Processor
☐ Business Software
☐ Modem
☐ Graphics
☐ Electronic Spreadsheet
☐ Data Base
☐ Games
☐ Control of other Devices
6. I spent on software in the past 12 months:
☐ less than \$100
☐ \$100 - \$300
☐ \$300 - \$600
☐ \$600 - \$1,000
☐ More than \$1,000
7. Regarding User Groups:
☐ I belong to a local group
☐ I'm active in a User Group
☐ I have never belonged to a local group
☐ I used to belong to a local group, but don't now
8. My vote for the best article in this issue is _____
9. My vote for the best ad in this issue is (Reader Service) number _____

Check each advertisement for corresponding number and circle below:

001	041	081	121	161	201	241
002	042	082	122	162	202	242
003	043	083	123	163	203	243
004	044	084	124	164	204	244
005	045	085	125	165	205	245
006	046	086	126	166	206	246
007	047	087	127	167	207	247
008	048	088	128	168	208	248
009	049	089	129	169	209	249
010	050	090	130	170	210	250
011	051	091	131	171	211	251
012	052	092	132	172	212	252
013	053	093	133	173	213	253
014	054	094	134	174	214	254
015	055	095	135	175	215	255
016	056	096	136	176	216	256
017	057	097	137	177	217	257
018	058	098	138	178	218	258
019	059	099	139	179	219	259
020	060	100	140	180	220	260
021	061	101	141	181	221	261
022	062	102	142	182	222	262
023	063	103	143	183	223	263
024	064	104	144	184	224	264
025	065	105	145	185	225	265
026	066	106	146	186	226	266
027	067	107	147	187	227	267
028	068	108	148	188	228	268
029	069	109	149	189	229	269
030	070	110	150	190	230	270
031	071	111	151	191	231	271
032	072	112	152	192	232	272
033	073	113	153	193	233	273
034	074	114	154	194	234	274
035	075	115	155	195	235	275
036	076	116	156	196	236	276
037	077	117	157	197	237	277
038	078	118	158	198	238	278
039	079	119	159	199	239	279
040	080	120	160	200	240	280

NOTE:

To speed the processing of your inquiry, please provide all of the information requested on the card. This will make it easier for the companies to follow up on your request as soon as possible.

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Use these convenient inquiry cards to request free information about the products or services advertised in this issue of Apple Orchard.

For information about specific advertisers or products, circle the number on the card that matches the Help Number shown with the item, or in the Advertisers' Index.

Just drop one of the postage paid cards in the mail and your request will be immediately forwarded to the company or companies.

APPLE ORCHARD JULY 1984 EXPIRES OCTOBER 1, 1984

Name _____ Title _____
Company _____
Address _____
City _____ State _____ Zip _____

Please check one box in each category:

1. This copy of Apple Orchard came to me through
 A. ☐ User Group
 B. ☐ Computer Store
 C. ☐ News Stand
 D. ☐ Borrowed
 E. ☐ Subscription
 F. ☐ Book Store
 G. ☐ School
2. I personally use most:
 A. ☐ Apple II/II Plus
 B. ☐ Apple ///
 C. ☐ Apple Workalike
 D. ☐ Apple //e
 E. ☐ Lisa
 F. ☐ IBM PC or workalike
 G. ☐ Don't own yet
 H. ☐ Other
3. I have owned a microcomputer since
 A. ☐ before 1977 F. ☐ 1977
 B. ☐ 1978 G. ☐ 1979
 C. ☐ 1980 H. ☐ 1981
 D. ☐ 1982 I. ☐ 1983
 E. ☐ not yet
4. I use my computer primarily for
 A. ☐ Home
 B. ☐ My Business
 C. ☐ Hobby
 D. ☐ Education
 E. ☐ Other
5. I use my computer primarily with
 A. ☐ Word Processor
 B. ☐ Business Software
 C. ☐ Modem
 D. ☐ Graphics
 E. ☐ Electronic Spreadsheet
 F. ☐ Data Base
 G. ☐ Games
 H. ☐ Control of other Devices
6. I spent on software in the past 12 months:
 A. ☐ less than \$100
 B. ☐ \$100 - \$300
 C. ☐ \$300 - \$600
 D. ☐ \$600 - \$1,000
 E. ☐ More than \$1,000
7. Regarding User Groups:
 A. ☐ I belong to a local group
 B. ☐ I'm active in a User Group
 C. ☐ I have never belonged to a local group
 D. ☐ I used to belong to a local group, but don't now
8. My vote for the best article in this issue is _____
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030	070	110	150	190	230	270
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035	075	115	155	195	235	275
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037	077	117	157	197	237	277
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Apple Orchard

Direct Help Department

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CLINTON, IOWA 52735



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Direct Help Department

P.O. BOX 2520

CLINTON, IOWA 52735



Price is \$4.75 per pad plus \$1.50 per order for shipping and handling.
Circle HelpCard No. 115
 Compu-Quote
 6914 Berquist Avenue
 Canoga Park, CA 91307
 (818) 348-3662

SOFTWARE

Business (General)

A turnkey **retail management system**, combining an Apple //e computer (with 64K of memory), one Datacap III POS terminal, a comprehensive software package, a 120 CPS printer, a Corvus 6M byte hard disk with software and cables. Included in the package are initial data entry of inventory and a week of training. The package is \$14,750, with additional POS terminals at \$3,225 each. For further information, contact Eric Pavlak, at (215) 646-7800.

Circle HelpCard No. 116
 Datacap Systems, Inc.
 7A Progress Drive
 Montgomeryville, PA 18936

People-Planner, for Apple /// computers (with Profile hard disk and a printer with 80 or 132 column output), is designed for use in labor intensive industries. It performs a wide variety of work requirements; allowing for the consideration of seniority, pay rate, and performance in scheduling; as well as minimizing overtime by optimizing employee availability. For further information, contact Frank Perlmutter, at (617) 424-1115.

Circle HelpCard No. 117
 Information Marketing Businesses, Ltd.
 877 Beacon Street
 Boston, MA 02215

Construction

The Edge, a residential electrical estimating package for use on Apple II computers (with Applesoft in RAM, 48K of memory, two disk drives, and a printer with a parallel interface), was developed and field tested by Cal-Namar Company over a four year period. The program asks for specific data in a step-by-step format and then produces the complete job take-off and material lists quickly and accurately. Work scheduling and inventory management are tightly controlled. \$285.00 plus

\$2.00 shipping and postage. For further information, contact Marc Braasch, Marketing Representative, at (805) 544-1077.

Circle HelpCard No. 118
 The Edge
 P.O. Box 149
 San Luis Obispo, CA 93406

Real Estate

Property Management Plus, for Apple II and /// computers, is a system for tracking Income and Expenses on rental property, providing both management and accounting information on a timely basis. The program keeps track of tenant information, rental incomes, rent statements, late rents, a vacancy report, expired leases, expenses, detailed reports on up to 100 categories (for the Income/Expenses-by building and account), operating statements, bank account reconciliation, and a graphics capability. \$450.00. Other modules are available.

Circle HelpCard No. 119
 Realty Software
 1926 So. Pacific Coast Highway
 Suite 229
 Redondo Beach, CA 90277
 (213) 372-9419

Financial

The Turningpoint Series, Systems II EX is a fully integrated business accounting package for the Apple //e or Apple /// (in emulation mode). The package includes software including General Ledger, Inventory, Receivables, Payables, Payroll and DataBase. The system uses a KSAM firmware card (for Slot 7 of the //e) which speeds up searches/sorts. Required hardware includes two drives, monitor, and a 132 column printer (or 80 column with compressed mode). Regular version, \$1,595.00, hard disk version is \$1,695.00.

Circle HelpCard No. 120
 Westware Software, Inc.
 2455 SW 4th Avenue
 Ontario, OR 97914
 (503) 881-1477

Two accounting programs, for Apple Two computers, (for up to four separate restaurant businesses) for restaurant owners, bookkeepers and accountants:

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Circle HelpCard No. 121
 Bob Martin, CPA

Know where your head is, at all times, with TRAK STAR constant digital readout



- Saves copying time
- For nibble programs

- + Works with nibble copy programs to display tracks and half-tracks that the program accesses.
- + Operates with any Apple®-compatible program.
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- + Displays up to 80 tracks and half-tracks; compatible with high density drives.
- + If copied program doesn't run, Trak Star displays track to be recopied.
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- + Does not use a slot in the Apple® computer.
- + For Apple® II, II+ and //e

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with purchase of Trak Star

- Trak Star disk contains patching software.
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Adapter required for 2-drive systems: \$12
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Midwest

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Circle HelpCard No.024

Microsystems

9071 Metcalf / Suite 124
 Overland Park, KS 66212

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 Tacoma, WA 98444

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Both programs together, \$690.00.

Circle HelpCard No. 122

Bob Martin, CPA
 9705 Via Roma
 Burbank, CA 91504
 (213) 393-9494

Financer, for Apple II and /// computers, has ten financial functions under one menu, for \$19.95:

- Simple Interest
- Present Value of a Future Amount.
- Future Value of a Present Amount.
- Amortization Schedules.
- Interest Rate, Compound Interest.
- Interest Rate, Installment Loan.
- Day of the Week for Any Date.
- Number of Days Between Any Two Dates.
- Present Value of a Series of Payments.

Circle HelpCard No. 123

Zephyr Services
 306 South Homewood Avenue
 Pittsburgh, PA 15208
 (412) 247-5915

A Statistical and Investment Software Package, for use with Apple Two computers, includes fifty programs for statistical forecasting, stocks, bonds, options, futures, and foreign exchange. The Handbook (220 pages) explains all fifty BASIC programs. Software is \$100.00, and the Handbook is an additional \$19.95.

Circle HelpCard No. 124

Programmed Press
 2301 Baylis Avenue
 Elmont, NY 11003
 (516) 775-0933

Communications

The **Ufonic Speech Composer**, for Apple II Plus or //e computers, enables users of Borg-Warner's Voice System to create a Ufonic soundtrack from a supplied bank of words. A ready vocabulary of over 2,000 of the most frequently used words is provided. The Soundtrack can be added to any unprotected program. \$225.00. (The Ufonic Voice System, consisting of an interface card and an amplifier/speaker is \$495.00.)

Circle HelpCard No. 125

Borg-Warner Educational Systems
 600 West University Drive
 Arlington Heights, IL 60004
 (312) 394-1010

Educational

School Discipline Manager, for Apple Two series computers (with 2 disk drives and an 80 column printer), tracks infractions by a simple coding system, and prints two different monthly suspension reports. It documents incidents and provides the objective data required for parent conferences, administrative hearings, and legal actions. The Small School version (for 800 students) is \$150.00, and the Large School version (for 2400 students) is \$200.00. A demo version is available for \$25.00. For further information, contact Leslie Nassau, at (201) 391-7555.

Circle HelpCard No. 126

K-12 MicroMedia
 172 Broadway
 Woodcliff Lake, NJ 07675

C L A S, The Computerized Lesson Authoring System, for Apple II Plus and //e computers, is a tool that allows teachers and parents to develop courseware without any computer experience. Lessons can be mixtures of drill and practice simulation, reading materials followed by problem sets of multiple choice, fill-in-the-blanks, matching and/or True/False questions. System includes an Author disk, A Student disk and a comprehensive User's Guide, for \$8.95.

Circle HelpCard No. 127

Touch Technologies
 609 S. Escondido Blvd.
 Escondido, CA 92025
 (619) 743-0494

Spell-It!, for the Apple II Plus or //e (with single disk drive and a standard cassette recorder), is an audio-visual aid. It includes an "Audio Enhancer" that links any standard audio cassette recorder to the user's computer. The package includes a Student diskette (and back-up), Teacher's diskette (and back-up), the Audio Enhancer, microphone and earphones, a tutorial audio cassette, a sample lesson cassette, and manual. \$179.00. For further information, contact Richard Thorp, at (301) 951-3646.

Circle HelpCard No. 128

MultiMedia Software
 P.O. Box 5909
 Bethesda, MD 20814

Software Images announces two new early learning software packages for the Apple Two computer:

- **ABC Soup**, has four alphabet games

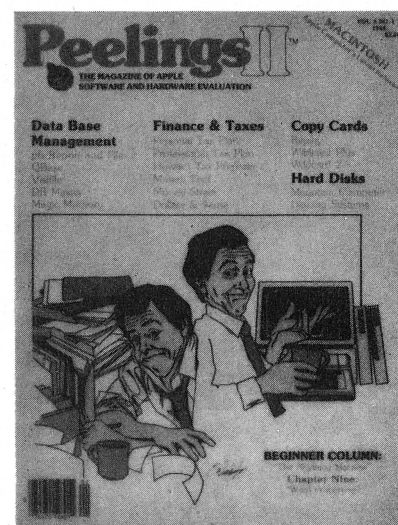
Inside Peelings is the heart of the Apple . . .

You deserve the inside track on products for your Apple. Trial and error is no way to buy software and neither is asking your best friends. Important product decisions should be based on facts and plain English analysis of Apple products from professionals who take the time to do it right. Peelings II gives you the facts so you can avoid costly mistakes and make the right decisions.

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Software Images

4264 West Broadway
Minneapolis, MN 55422

U.S. Constitution Tutor, for the Apple II computer (with 48K and one disk drive), has been completely reformatted. New, expanded teaching materials are included. \$30.00.

Circle HelpCard No. 131

Micro Lab Computer Products
2699 Skokie Valley Road
Highland Park, IL 60035
(312) 433-7550

Marshfilm Enterprises has released three new educational programs for use on Apple II Plus and //e computers:

- **Body Systems Series**, for Primary level education, is four disks covering the respiratory system, the digestive system, bones and muscles, and the heart. \$135.00, or \$35.00 for each title.

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Marshfilm Enterprises, Inc.

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Marshfilm Enterprises, Inc.

P.O. Box 8082
Shawnee Mission, KS 66208
(800) 821-3303

Games/Simulations

The following adventure games are available from Infocom:

- **Sorcerer**, for the Apple Two (and many other computers), is a follow-up to Enchanter. This adventure game recognizes a vocabulary of over a thousand words. Players advance through the game by using magical powers they acquire along the way. \$49.95.

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Infocom, Inc.

- **Seastalker**, for the Apple Two, is an interactive fiction adventure, that makes the computer user the main character of the story. \$39.95

Circle HelpCard No. 136

Infocom, Inc.

55 Wheeler Street
Cambridge, MA 02138
(617) 492-1031

Starship Captain, a select-a-story program, allows users to select decisions that lead to five different endings. Children from 8 to 15 become part of the story as they assume the role of the Captain of a Starship. \$19.95.

Circle HelpCard No. 137

Tuvela Software

P.O. Box 3002
Santa Clara, CA 95055
(408) 985-8285

Forbidden Quest has been rewritten for the Macintosh computer, and will allow use of the mouse to simply "click" most common answers. \$44.95.

Circle HelpCard No. 138

Priority Software, Inc.

P.O. Box 221959
Carmel, CA 93922
(408) 625-0125

Institute, is psychological drama played on Apple Two computers. The only way to escape the Institute is to carefully watch one of four dreams (induced by a red powder) and search for clues that lead to escape.

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Screenplay

P.O. Box 3558
Chapel Hill, NC 27514
(919) 493-8596

Terminal Trivia, for Apple II Plus and //e computers, has over 1,500 trivia questions. Three levels of play are offered. \$49.95.

Circle HelpCard No. 140

H.U.M.A.N.S., Inc.

P.O. Box 82
Evington, VA 24550
(804) 525-3441

Graphics

3-D Scribe, for the Apple II Plus and //e computers, is a three dimensional modeling system. Hardware requirements include a twelve inch monitor, one floppy disk drive, controller card, and joystick or Koala Pad, plus a plotter for graphics output (such as a DMP, HP, or Epson MX with Grappler Interface Card). The Standard Resolution Graphics Package is \$1400.00, and the High Resolution version (with VGP Card) is \$2400.00. For further information, con-



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tact Joy Bardin, Marketing Assistant, at (714) 835-6660.

Circle HelpCard No. 141

3-D Scribe

1000 South Grand Avenue

Santa Ana, CA 92705

Languages (Programming)

TeleForth, for the Apple II Plus and //e computers, includes an extensible screen editor, 6502 macro assembler, high resolution turtle graphics, floating point and double precision arithmetic, and a DOS 3.3 interface. \$75.00. Source code and cross compiler, \$100.00. (Both for \$150.00.)

Circle HelpCard No. 142

Telekinetics

11 Julie's Walk

Halifax, N.S., Canada

B3M 2Z8

(902) 443-1813

DOS 3.3 Commented is a complete line by line description of the disk operating system (version 3.3) for the Apple II line of computers. Line addresses are given in both hex and decimal. \$30.00.

Circle HelpCard No. 143

Jagware

127 Albany Avenue S.E.

Orange City, IA 51041

(712) 737-2678

Languages (Languages)

The Linguist, written by Synergistic Software for Apple Two computers, is designed for language teachers and/or students. It accepts phrases up to 40 characters in length, and has hi-res character sets for use with 20 different languages. User works with two languages at a time, and study/drill is with blocks of 50 phrases at a time. \$44.95.

Circle HelpCard No. 144

Gessler Educational Software

900 Broadway

New York, NY 10003

(212) 673-3113

Language Lab, for Apple personal computers (with 64K RAM, one diskette drive, and an audio cassette player), offers computer-aided study, self-quizzing, and interactive Audio Cassette for pronunciation. An Interactive Audio Cassette Adapter is included to

start and stop the student's cassette player under program control. Available for Spanish, French, and German, at \$235.00 per language. Optional add-on features, which allow the user to customize lessons, are available for \$69.00 per learning level. For further information, contact John M. Kirk, at (516) 421-2653.

Circle HelpCard No. 145

Lamplighter Software, Inc.

7 Breton Avenue

Melville, NY 11747

French Grammar Review, for Apple Two computers, is a review program for learning Present and Passe Compose of regular and irregular French verbs. A code helps the student to correct mistakes. Strong reinforcement is given including making the student type the correct response before continuing. \$35.95.

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Gessler Educational Software

900 Broadway

New York, NY 10003

(212) 673-3113

DIWAN BILINGUAL 14, is a bilingual Arabic/English package for Apple Two series computers. The program also facilitates programming in an Arabic version of BASIC (based on Applesoft). The package uses the UNSCRIMP/2 software protection device from U-Microcomputers, Ltd, of Warrington, England.

Circle HelpCard No. 147

For further information, contact Mr. Ramadini, at:

Science and Information Technology, Ltd.

27A Old Gloucester Street

London

WC1N 3XX

La Guillotine, for Apple Two computers, is an introductory/review program for beginning French. The familiar game of "hangman" is played in a series of categories (five), with forty words in each. \$29.95.

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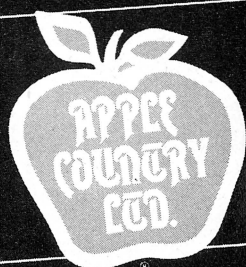
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Personal

Auto-Pool, for Apple II Plus and //e computers (DOS 3.3/Applesoft), is a menu-driven program for optimizing and maintaining a car pool. The program schedules the distance driven by each participant, and the days he drives. Schedule calendars for each member of the pool can be printed. A Fuel Savings



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 Star Point Technology
 4730 Grannan Way
 Placerville, CA 95667
 (916) 621-1393

The **Chess Valet**, for Apple Two computers (with DOS 3.3 and 48K RAM), is a tool to assist chess players analyze their games. It allows recording of comments of each move, and creation of databases of master games for later study.

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For further information, contact:
 Robert J. Belanger
 35 W. Charlotte Avenue
 Cincinnati, OH 45215

Personal Tax Planner is now available for the Apple //c personal computer. This version supports the //c's 128K memory and 80-column capabilities, as will new versions of Professional Tax Planner and Estate Tax Planner. \$99.00.

Circle HelpCard No. 151

Aardvark/McGraw-Hill
 1020 North Broadway
 Milwaukee, WI 53202
 (414) 225-7500

DPS (Decision Pathing System), for Apple II Plus and //e computers (with

64K RAM), allows the user to consider real-life choices and review consequences of those decisions without paying real-life penalties.

Circle HelpCard No. 152

VORT Corporation
 P.O. Box 60132
 Palo Alto, CA 94306
 (415) 965-4000

Utilities

CALENDAR/1, for Apple II computers (with Z80 CP/M card), prints or displays calendars of events in the standard, graphic monthly calendar format, or in different formats, sizes, and printer characteristics. It can be used as an appointment book or production schedule. \$95.00. For further information, contact Barbara Like, at (213) 394-7740.

Circle HelpCard No. 153

Clear Systems
 607 Ashland Ave., Suite A
 Santa Monica, CA 90405

Keypint, for Apple II and //e computers, is a configuration program that allows complete menu control of Epson MX, RX and FX dot matrix printers. \$59.95.

Circle HelpCard No. 154

Softkey Software Products, Inc.
 2727 Walsh Avenue
 Santa Clara, CA 95051
 (408) 986-8148

The **Desktop Calendar**, for the Lisa Office System (and Macintosh, later in the Fall), is a time-management software tool. A graphic calendar display with a notepad/appointment book is at the heart of the system. The program includes pull down menus, scrollable and resizable panels, and the ability to exchange text with LisaWrite and LisaDraw. Panels can be printed. \$295.00.

Circle HelpCard No. 155

Videx, Inc.
 1105 NE Circle Blvd.
 Corvallis, OR 97330
 (503) 758-0521

Word/Idea Processing

A Macintosh version of **Thinktank** joins versions, which are now available on Apple II, //e and Apple /// computers. This idea processor (outline editor with features for the professional) will incorporate Mac's advanced features.

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Living Videotext, Inc.

1000 Elwell Court, Suite 232
 Palo Alto, CA 94303
 (415) 964-6300

The **Steno Word Processor**, for Apple II Plus and //e computers, offers several features not usually incorporated into the "less-expensive" word processing packages. These include: Macros, a Diary mode, Tabular formatting, Address (Data) files and a number of automatic functions (such as spacing & capitalizing after periods) that streamline keyboard input. \$125.00. For further information, contact Tom Schenck, at (213) 884-5910.

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Compu-Lynx
 19528 Ventura Blvd., Suite 262
 Tarzana, CA 91356

Miscellaneous

The **Micro Barmate** provides valuable reference information for the person preparing drinks for parties and entertainment. It includes instructions for making liqueurs, bar stocking hints, calorie information and a party planning guide. \$40.00.

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Softsmith Corporation
 1431 Doolittle Drive
 San Leandro, CA 94577
 (415) 430-2411

Books/Catalogs

Software Express, a 320 page, quarterly guide, helps software users purchase from more than 800 programs. \$9.95 per copy, or \$18.95 for a one-year subscription.

The Bohle Company
 2035 Landings Drive
 Mountain View, CA 94043
 (415) 962-9555

Books from Sams:

- *The Computhink Guide to Spreadsheet Software*, ISBN 0-672-22164-0), by Jesse Berst, 168 pages, \$11.95.
- *Computers Won't Byte*, ISBN 0-672-22316-3), by Linda Coccione and Gayle Winter, 124 pages, \$4.95.

Howard W. Sams & Co., Inc.
 4300 W. 62nd Street
 Indianapolis, IN 46268
 (317) 298-5400

Black Box Catalog, 112 pages, free.
 Black Box Corporation
 P.O. Box 12800
 Pittsburgh, PA 15421
 (412) 746-5500

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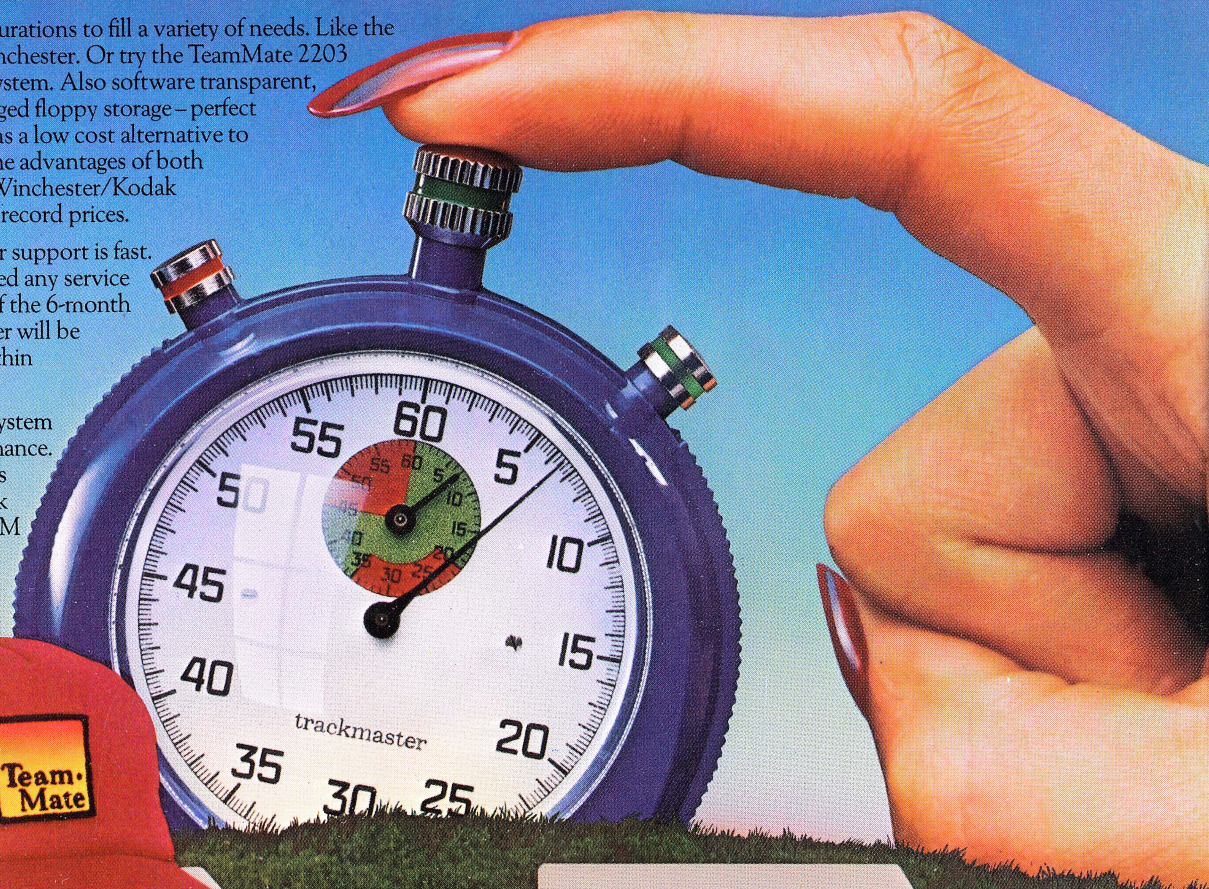
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